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SUPPURATIVE APPENDICITIS, WITH LOCALIZED ABSCESS OR GENERAL PERITONITIS*

By H. J. Bartron, M. D. and C. E. Sherwood, M. D.
WATERTOWN, SOUTH DAKOTA

This subject is of peculiar interest to us for a number of reasons: first, because of the fact that we have a rather large number of these cases, seldom being without one or more in the hospital, and thus have the subject before us all the time. It is of interest also because no class of patients are more desperately ill, and it is always gratifying to the surgeon to know that by his skill and knowledge, he has saved a human life. Our peculiar interest in the subject, however, is due to the fact that our method of handling the cases is somewhat different from that we have observed elsewhere and we believe has given us uniformly better results.

There are a number of reasons for the comparatively large number of suppurative appendices which we see. A large number of them occur in children who are subject to the common aches and pains, together with the infallible home remedy, castor oil. A physician seldom sees this class of patient till several days have passed, and the chance of recognizing the case in its incipiency is gone. This state of affairs is due sometimes to negligence on the part of the parents, but is usually brought about because of the comparative inaccessibility of medical aid. Another class of cases are those in which the physician is called early, makes a diagnosis of acute appendicitis, and urges operation. The patient, however, argues that this is the first time he has had it and that So-and-so got over his attack; that he has not time to have it done now, but will next time, or that he has had a number of attacks just like this and has always recovered, so thinks he will wait, thus bartering his practically sure chance of recovery for a much more hazardous one. Then there is the class who have been seen by a physician, who either fails to recognize the condition or makes light of it and tells the patient that he will treat him medically. This class, fortunately, is small and is fast becoming smaller. The profession has come to recognize that appendicitis is a purely surgical condition and that, when once diagnosis has been made, immediate operation cannot be too strongly urged. The greater proportion of our cases of appendiceal peritonitis give a history, often difficult to elicit because of its mildness, of having had trouble with the appendix at various times before.

The diagnosis of the condition is not always easy. The points we must depend on are: (1) a history of having had at some previous time a typical attack of appendicitis. This cannot be obtained in a large number of cases, especially in children. (2) Abdominal pain. This is the most constant symptom, being present in all cases. The pain is, in a large number of cases, general, but is always localized in the region of the appendix. A sudden cessation of the pain is considered as a diagnostic point, indicating that the pressure has been suddenly relieved, usually into the abdominal cavity. There is usually then a brief period of freedom from pain in which the patient may be up and about. After this the pain becomes generalized and more severe. (3) Increased temperature. Temperature is a variable factor. Mouth and axillary temperatures are only of value when compared with the rectal temperature. The more the variance, the more critical the case. The range of temperatures in 85 of our cases on entrance to the hospital runs from 96.4° to 104°, rectal. Of these 26 were below 100°; 37 between 100° and 102°; 24 between 102° and 103°; and only 8 above 103°. The few cases seen with subnormal temperatures were at times of entrance in an extreme condition of shock. (4) Abdominal sensitiveness. While there is in a large number of these cases a generalized abdominal tenderness with the accompanying muscular rigidity, there can be obtained in every case extreme tenderness over the appendix. (5) Nausea and vomiting. This has usually been present at some time during the attack. Early, this is due to reflex, while later, when the peritonitis has developed, it may be due to obstruction or intestinal paresis. (6) Tumor mass. This may or may not be present. At times it is due to the wrapping of the appendix with omentum. It may be a localized abscess, or it may simply be due to the reflex spasm of the abdominal muscles over the inflamed area.

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*Presented at the Fortieth Annual Meeting of the South Dakota State Medical Association, Aberdeen, S. D., May 24 and 25, 1921.

Care must be taken in palpation of these tumor masses that the protective barrier which has been formed is not broken down. It is always well to make a digital examination per rectum, especially in children, as one can often differentiate between a walled off process and a diffuse peritonitis in this manner. (7) Leucocytosis. While it is always well to make a leucocyte count in these cases, yet its value is only corroborative. Counts vary from normal to 30,000. A low leucocyte count in peritonitis cases denotes a critical condition. In our series of cases, however, a sufficient number of counts has not been made to be of statistical value. (8) Pulse. The pulse is of very little value from a diagnostic point. Age and sex must be taken into consideration in forming opinions from the pulse rate. In advanced cases of peritonitis when the pulse is compressible, rapid, and feeble, it is a fair index to the degree of intoxication and of fair prognostic value. Abstracts from a couple of case histories picked at random, will present a picture of the usual type of case.

Margaret E., aged 8. Attack began with vomiting and pain in the right side a week ago. After a few days it cleared up with very little pain and became worse again on yesterday, patient vomited a little this morning. The child looks sick. Temperature, 102°, rectal; pulse, rapid; abdomen, rather tense and tender throughout; mass felt in lower right quadrant, very tender; leucocyte count, 32,700; rectal examination, negative.

Adam E, aged 12. Came home from school on Friday with pain over the lower abdomen; vomited; saw the doctor and was given some medicine; was unable to void and was catheterized. Better on Sunday, and was up and about at times. Sunday night, he was taken with cramps, and was worse Monday; vomiting and extreme soreness over the right side. Examination Monday shows temperature 102.2,° rectal; pulse 160, weak; skin, cold, moist, and clammy; has cough; looks toxic; abdomen shows a mottled blue, rigid throughout, tender, especially over the appendiceal region; bulging on rectal examination. Luecocyte count, 18,450. Right lung shows harsh bronchial respirations through out.

Both of these cases were operated on immediately. In both cases the usual technic was used. Margaret recovered while Adam lived about eighteen hours following the procedure.

The method of handling these cases is of course operative. We use the McBurney muscle splitting incision, opening into the abdominal cavity. Search is made for the appendix, which is removed in practically every case. Where possible the stump is invaginated. Where this is not easily done, owing either to the friability of the tissues or the inaccessibility of the cecum, we simply tie the stump with chromic catgut, and allow it to drop back into place. The mesenteric stump is also ligated with chromic. Bleeding points are picked up, and any gangrenous portions of omentum are ligated and removed. Where the condition of the patient permits, we break up adhesions that may tend to kink the ileum or to form pockets for pus-retention. As drains we usually use two large rubber tubes, one which passes down to the cul-de-sac, and the other passes up under the liver. A soft rubber tissue drain of good size is then passed over the omentum towards the opposite side in the splenic region. The rubber tube to the cul-de-sac is adjusted by means of rectal, digital examination to such length that it in nowise presses into the rectum and thereby cause obstruction. The skin is sutured around the tubes and dressings applied. The drains are not sutured in situ.

It is here that our technique departs from the usual. Instead of using the Fowler's position, which has been and still is so popular in cases of this type, we return our patients to bed and place them on their right side, even before they have reacted. They are maintained in this position throughout their convalescence as long as drainage persists. Care is taken that this position is kept up day and night by means of pillows. The position requires that hips are at least vertical or, perhaps, even more rotated. The patient soon becomes accustomed to this position and does not complain of it. This position makes drainage towards the most dependent point, and does not allow the retention of pus in pockets, which the Fowler's position does. It will reduce to the minimum the formation of secondary abscesses in the natural pockets of the abdomen, the subphrenic, splenic, and the cul-de-sac.

Murphy drips, saline per rectum, et cetera, in a large majority of cases are not necessary. They may, however, be tried in the more serious cases where collapse and shock are extreme. It has been found that in most cases the mere emptying of the pus from the abdominal cavity improves the condition to such an extent that the patients immediate postoperative condition is much better than the pre-operative. Morphine sulphate, gr. ¼, hypodermically is given to adults as soon as they react. The younger children are given no hypnotics. One dose of morphia is usually all that is needed to tide the patient over the first acute restlessness, pain, and the discomfort from their unaccustomed position. Rubber rings and pillows for the hips and hollows add much to the comfort.

The dressings are changed as often as necessary when soiled by the drainage. The tubes are not molested for the first five to seven days. After that time the long rubber tubes are removed and replaced by large twisted soft rubber tissue or gutta percha drains. This change is now made, as sufficient time has elapsed for the formation of sinuses to the pockets, and it has been found that if drainage tubes are left in situ much longer, fistulæ are prone to develop, due to pressure necrosis, especially in those cases where the gut wall has already become gangrenous and necrosed. These drains are then left in place throughout the remainder of convalescence. As the drainage ceases and becomes less purulent the drains are gradually shortened, allowing healing to take place from the bottom.

As to general post-operative care: Enemas are given the first day to alleviate gas pains; cathartics and laxatives are started on the second day and are largely relied upon throughout convalescence, especially where the intestinal wall is gangrenous, as the excessive use of enemas may produce fistulæ. Paralitic ileus is treated with enemas, stupes, pituitrin, et cetera, as the occasion arises. Diet is commenced after the first day with liquids. It is gradually increased to a general diet by the end of the first week.

The great majority of the patients have, by the end of the week, attained a normal temperature, and usually maintain it throughout the remainder of their convalescence.

In our series of cases the usual length of time in the hospital, and they are kept till the drains are all out, is from four to six weeks. About 25 per cent get out in four weeks and under, while about a like number run over six weeks. The shorter ones are usually those where the peritonitis was circumscribed and localized, while the longer ones were those cases in which the process was more general and more severe.

We believe that our mortality, 6.435 per cent, considering the extreme graveness of the condition, is low. Some of these people are desperately ill. They come in with drawn faces, rigid distended abdomens, with pulses so rapid and feeble that one cannot count them, even having vomited fecal matter for some time. On opening the abdomen the pus gushes out in huge quantities. The intestines are gangrenous, and matted together in huge masses. They have fecal vomiting for several days after operation, and yet they get well. It is little short of marvelous. In 202 consecutive cases there have been 13 deaths. One of these cannot be rightly charged to this condition as the patient was pregnant and was convalescing from the operation on the appendix very nicely, having had a normal temperature for about three weeks, when she miscarried, and from then on she went bad and died in a few days.

There have been in the series a number of temporary fistulæ which have always healed before patient left the hospital. In only two cases has a persistent fistula been obtained. We attribute this to the fact that care is always taken to remove the appendix and any portions of gangrenous omentum which may be present.

The available data on post-operative herniæ shows them as occurring in only 2 per cent of the cases. The low percentage is due, no doubt, to the muscle splitting incision used and to the fact that the patients are kept down till the drainage tubes have been removed and the sinuses closed.

In the series there have been no secondary abscesses which have necessitated subsequent drainage. An enterostomy for post-operative obstruction has never been necessary. In only one case has a secondary operation for removal of the appendix been performed.

We feel that this method of treatment will obtain (1) lessened mortality, (2) a smaller percentage of post-operative fistulæ, (3) a fewer number of post-operative herniæ, (4) fewer secondary abscesses, and (5) a less stormy convalescence; and the method is therefore worthy of the serious consideration of the surgeon.

MALIGNANT DISEASE OF THE RECTUM AND SIGMOID, WITH A PLEA FOR AN EARLY DIAGNOSIS*

By G. A. Carpenter, M. D., F. A. C. S.
FARGO, NORTH DAKOTA

It is not my intention to present anything new in the way of treatment, such as surgery, *x*-ray, or radium, but simply to call your attention to some facts regarding pathological conditions of the rectum and sigmoid, hoping by doing so that we may be able to render better service to our patients.

The most common location for disease in the intestinal tract is in the neighborhood of the pylorus, the cecum, the sigmoid, and the rectum.

Diagnosis is generally made early when the disease appears in the region of the pylorus or cecum, but not so when located in the rectum or sigmoid; and, if malignant, the disease has often progressed so far that remedial measures are of no avail except to afford temporary relief.

A patient afflicted with carcinoma of the rectum, which is not amenable to cure, appears to me to be suffering from one of the worst afflictions to which the human body is liable, loathsome to himself and family, and a constant care to his attendants.

Statistics from large clinics show that the mortality from operations for cancer of the rectum and sigmoid has been greatly reduced during the past few years, due to a more perfect technic, and the percentage of cures is much larger among the patients who have submitted to an early operation. Recurrences are less when the operation has been followed by *x*-ray or radium.

The development of cancer in this region appears to be much slower than in other parts of the body, and metastasis much slower to appear. The symptoms are not so marked as they are when the disease appears higher up in the digestive tract, and, as the disease does not interfere with nutrition unless obstruction occurs, you will find your patient well nourished and probably no cachexia evident if the case is seen early.

I am sure that this field has been neglected by the general practitioner, and many a time patients complaining of minor symptoms are not subjected to a thorough examination, but are given some rectal suppositories, formulated by some manufacturing chemist, and are not warned as to what may be the true condition present.

Many a pelvic examination is made of the female organs for reflex symptoms and the rectum and sigmoid never examined, while we all know that diseased conditions of the rectum and sigmoid may produce the reflex symptoms of which the patient complains.

Such patients are at time subjected to surgical operations without obtaining relief only to find that the trouble was in the lower intestinal tract.

We often hear the term "pre-cancerous condition," and consider it a condition where the parts are constantly subjected to some source of irritation, ulcerations, chronic inflammations with indurations, benign tumors, etc.

Now, if we recognize such a condition certainly the lower bowel comes in for its share for such pathological findings, and, if not properly cared for, a fair percentage of malignancy will appear.

Statistics from large clinics show that about 18 per cent of carcinomas of the intestinal tract appear in the rectum, the most common site being three or four inches from the anus.

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*Presented at the Thirty-fourth Annual Meeting of the North Dakota State Medical Association, Fargo, N. D., May 26 and 27, 1921.

Gant states that in one hundred cases of carcinoma of the rectum and sigmoid examined by him, 5 per cent were located in the anal margin, 10 per cent in the anal canal, 50 per cent in the ampulla, 20 per cent in the upper part of the rectum, and 15 per cent in the rectosigmoidal juncture. It is found in about 65 per cent of the cases coming to the surgeon that the disease has advanced too far for a successful operation.

The symptoms are so varied in malignant disease located in this region that it is impossible to rely upon any of them in arriving at a diagnosis, so it is imperative that we make a thorough examination whenever a patient complains of any condition in this region which leads him to believe that there is some abnormality present.

I find no difficulty in getting patients to submit to an examination, and, if properly made, it is practically painless.

I prefer not to have any preparations made beforehand, such as flushing for the first examination, as I wish to examine the field and judge the everyday condition.

You will find in a large percentage of cases you can make a satisfactory examination without any previous preparation.

The rectal speculum should never be used for an examination as it does not give you a good view of the field and causes a great deal of pain.

With your patient in the knee-chest position, with proctoscope and sigmoidoscope, with the pneumatic attachment to be used, if the rectum does not balloon out, and with proper light, you can get a clear view of the field. Tissue may be removed for laboratory examination, or local treatment may be applied direct to any diseased area.

Allowing patients to make their own diagnosis and prescribing ointments, suppositories, pile pipes, dilators, etc., have driven many to the charlatan and quack.

CONCLUSIONS

Proper treatment of pathological conditions in this region may prevent the development of malignancy.

An early diagnosis of malignant troubles will bring more patients to the surgeon in time for a successful operation.

All patients complaining of unusual conditions in the anorectal region or complaining of reflex symptoms which are usually ascribed to pelvic disease, should be submitted to a thorough examination.

DISCUSSION

Dr. W. A. Gerrish: (Jamestown): This is a most important paper. It is the early diagnosis of cancer of the lower colon and rectum that is most essential. Cancer of the lower rectum within reach of the finger should rarely be missed, yet how often do we run across late cases of cancer in this region in which the previous operation of hemorrhoidectomy has been performed, the operator blissfully ignorant of the mass at the end of his finger?

Why do we not more often make these rectal examinations? We pass them up right along. As the Doctor has aptly put it: we let the patient make his own diagnosis. So many of these tumors are within reach of the finger, and the characteristic feel of a carcinoma of the bowel (alternating hard and soft areas) is so almost pathognomonic that we at least should detect it without the use of an instrument of any kind. And we should all realize that no general examination could possibly be considered complete without a proctosigmoidoscopic examination.

Also I would call attention to the fact that pain, cachexia, and loss of weight are all late symptoms. The only early symptom that you will get from the patient will be hemorrhage, and in my opinion any hemorrhage from the bowel in which a man can not find an open hemorrhoidal vein after several examinations, should be considered due to a cancer higher up. It is almost pathognomonic. If in examining the mucous membrane of a rectum you see little streaks of dark bloody mucus coming down, and, if you cannot find the origin of that fresh, bloody mucus, you had best consider that you have a malignant case to deal with. Also this area is prone to polypi, which become degenerated and carcinomatous; therefore these should all be removed as soon as found. At that stage, even though the type of these polypi may be carcinomatous, I believe simple snaring in most cases would be perfectly safe, and here one cannot consider resection at all. Another thing: In this area metastases are late. You can do a resection of the bowel, removing the rectum and, if necessary, a portion of the sigmoid with dissection and thus get rid of the carcinomatous process, because metastases occur very late. In many cases which would otherwise have a fatal termination this radical procedure proves to be successful. I beg every one to make more rectal examinations, as the Doctor emphasizes. It will pay, and save you much humiliation.

Dr. E. P. Quain (Bismarck): I would like to say a word about the management of old inoperable cancer. Ever since the introduction of morphine and the hypodermic syringe it has been the practice of our profession to allow most of our cancer patients to become morphine addicts. In general, I believe this is bad practice. One is apt to begin too early in the face of hopelessness to educate the patient to become a morphinist. In most instances there are other means by which the restlessness and later the pain of cancer can be controlled. Radium and *x*-ray occupy first place in holding back the progress of the tumor and making the patient more comfortable. Other means have been used with the same object in view, such as the introduction of various metallic salts, among them selenium and calcium salts. The injection of calcium chloride in sufficient amounts to produce fixation abscesses has in some instances reduced developing tumors in size and softened their consistency and has on a few occasions led one to believe that a cure from the cancer had taken place. The relief, however, has always been temporary, but even so the use of intramuscular injection of calcium chloride is worth while in an inoperable cancer before the patient is given over to the morphine habit.

There are other means available, such as the injection of local anesthetics. The anesthesia may be of different types, and its induction depends on the location of the malignant growth. A more radical measure is the severing of nerve trunks supplying the area involved by inoperable cancer. This is especially to be recommended in hopeless cancer of the extremities. Any or all of these measures should be thought of and used before the patient is allowed to become permanently morphinized, because the use of morphine for the permanent relief of cancer pain means a premature death of the patient. A drug fiend is a different person in character, disposition, and morals—he is an object of contempt and distress, both to himself and to those about him.

Dr. H. B. Sweetser (Minneapolis): Cancer in any location is a very serious problem. In cancer of the rectum a great deal more can be done for cases that are apparently inoperable on account of the late metastases. The comfort given is tremendous, and also the number of cases which do not recur is quite large.

Pain in carcinoma of the rectum is largely due to the flowing of the fecal stream over the ulcerated surface. If you can divert this stream the pain is relieved to a very large extent, and you can divert it by doing a colostomy. In the inoperable cases you can do a permanent colostomy so that nothing will pass below the opening into the rectum. Patients for whom I have done colostomy have been entirely relieved of pain for a long time, and there is no necessity for the use of morphine.

There is one thing to which these patients object: They say, "I will have my bowel content coming out here and will be ostracized from society." That is not so. With care you can make a colostomy which will furnish a sphincter through the fibers of the rectus muscle. The patients can flush the bowels with an enema, lay up for a few hours, and then be able to go out into society, for nothing comes through except at stated intervals. They use a little rubber pad and can do anything and go anywhere. I have had patients with inoperable carcinoma of the rectum who have gone along for three years before they died, attending to business matters, going into society, and doing as they wished. In some of the patients who have a great deal of pain, and whom this procedure does not relieve, you can, if necessary, cut the posterior root of the posterior sensory nerves. This does not cause paralysis, but produces loss of sensation of the lower part of the bowel and of the lower part of the body generally, and still does not seem to make very much difference in function

Dr. Carpenter (closing): In writing this paper it was my purpose to see if I could not stir up a little discussion, and, furthermore, to attempt to induce the general practitioner to open up this field and get busy. We all know that this is a field which has been greatly neglected in the past, and we feel that if we give it more care and consideration our results will be much improved. The various pathological conditions found in the rectum which go untreated must produce a certain percentage of malignancy, as the ulcerations, fissures, fistulas, hemorrhoids, and a great many different morbid processes, and especially the benign tumors. If these conditions were all properly treated early, I feel that there would be a far less number of cases of cancer of the rectum. It is a very simple matter to treat these patients if you get them early, but we realize that it is a hard proposition when malignancy advances to such a stage that the case is inoperable, to give the patient a great deal of relief except temporarily, and possibly only for one or two years.

FRACTURE-DISLOCATION OF THE HEAD OF THE HUMERUS*

By G. G. Cottam, M. D.
SIOUX FALLS, SOUTH DAKOTA

I feel that no excuse is necessary to offer you for a talk on this subject, because, unless I am mistaken, the surgery of traumatic bone lesions continues to occupy a very important place, for the reason that it brings more grief to us and to the patient than any other class of cases we have to contend with. I mean that unrecognized bone lesions of certain classes, of which this is one, result in such unfortunate after-effects that the patient is in many cases permanently impaired physically, and the result is by no means creditable to us. Therefore, I am sure you will feel I am justified in bringing up a subject of this character at this time with conditions as they are.

Now, I have chosen this particular phase of the subject because it is one of the real emergencies or surgery. It is one of the things in which watchful waiting and all that sort of thing does not get us any place. It is a type of case in which accurate surgical diagnosis and properly applied intervention are necessary in order to secure the right kind of results; and if this is done we can get results that are at once satisfactory and incidentally creditable from the standpoint of getting restoration of function.

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*Presented at the Fortieth Annual Meeting of the South Dakota State Medical Association, Aberdeen, S. D., May 24 and 25, 1921.

These cases come to us with a history something like this: The patient is usually an adult. I do not know why almost all of these cases of fracture-dislocation of the head of the humerus happen in grown people. I have never seen a case in a child, and very few have been reported. I have had no personal experience with fracture-dislocation of the head of the humerus in a child. First of all, they occur in adults; and the second phase of the proposition is that the vulnerating injury is not a severe one. I have had three cases which I will relate further on in more detail.

In the first case the accident or injury was due to the patient slipping from the step of a buggy to the ground. In the second case a young man was engaged in working with some timber, and the timber slipped and struck him on the shoulder with the result that it produced a fracture-dislocation of the head of the humerus. The third case was an elderly woman who fell two steps. That is the usual history so far as the cause of the lesion is concerned.

A physician is called, and he finds this condition present: The patient has a painful shoulder with the usual impairment of function which goes with any joint injury. He finds a flattened deltoid, and it looks like a case of dislocation of the head of the humerus. It looks like an ordinary case of dislocation, and in most cases the physician assumes such to be the case. An anesthetic is administered, and the doctor proceeds to try to effect reduction with very unsatisfactory results, because in a certain proportion of these cases the patient is a laboring person with well-developed musculature of the shoulder, so that the symptoms are more or less masked by the hyperdevelopment and the muscle spasm, which is invariably present.

These injuries are not easy to diagnose. Reduction is not effected. One would think there would be crepitus in these cases, but there is not. Crepitus cannot be elicited, and when we stop to think it is easy to explain why not. The head of the humerus being knocked out of the glenoid cavity, rotates the broken surface, which is usually through the surgical neck. It is rotated away from the shaft of the humerus, so that when we make our manipulations to get crepitus there is no apposition of fractured surfaces and so it continues to feel like a dislocation, and still no reduction is accomplished.

The next thing is an *x*-ray picture. It should be taken in any case of this kind where immediate results are not obtained, and it tells the story. We find, as I have just said, the head of the humerus broken away from the shaft through the surgical neck, either below the glenoid cavity or below the subcoracoid process; and the shaft overriding, sometimes extending, will be beyond the glenoid cavity itself. That is about all there is to the history and examination of these cases, and they bear a striking resemblance.

I have looked over a number of cases in the literature, and I have been struck by the remarkable similarity these cases bear to one another.

What is to be done? There is one thing to be done. I do not know of any so-called conservative treatment of this severe lesion. I do not know of any way that the head of the humerus can be manipulated in place by external measures. I have not been able to do it, and I have not been able to find anybody else that could do it. However, at this meeting we may find some exception to the rule. In my judgment these cases are strictly operative. They are absolutely operative, and the only question that arises is as to the proper time to do it. We have learned one good rule in surgery of traumatic bone lesions, and that is not to be in too much of a hurry. In the first place, in this particular class of cases there has not been a very severe injury, but the fear of that will come. There is, unfortunately, a certain amount of local reaction. There is bound to be. There is bound to be a certain amount of lymph extravasation, of hematoma formation, of injury to the soft parts around the joint, and, I am frank to admit, some of this injury to the soft parts is due to our manipulations while trying to make a diagnosis. So we must remember this point in all of these cases, and should establish the rule that early operation is never indicated. I do not know of any reason why we should hurry to operate on these cases unless it might be perhaps in an exceptional case, where some large vessel has been torn in the accident, and where there is a large and rapidly increasing hematoma that might seem to indicate intervention to stop the hemorrhage and get it under control. However, such cases must be rare, and I have not been able to find any. So my rule is not to attempt intervention in these cases until the parts have had a chance, to use a homely expression, to settle down, to get back to normal as far as they possibly can under these conditions. To wait until the tenth day after the accident is plenty soon enough. Two weeks is not too long. It would not hurt if it were sometimes longer. There is nothing going wrong by waiting, and the reason we should not wait longer is to avoid unnecessary delay for economic reasons. As a rule, from the tenth to the fourteenth day after the diagnosis is made of an injury of this character operative intervention should be attempted.

As to the method I have used. I have had these three cases only, but I have chosen in each case the anterior approach. I have made my incision external to the sulcus formed by the fusion of the deltoid and the great pectoral muscle. The cephalic vein, you may remember, lies in this groove, and it is well to go a little outward to avoid that, although it does not make much difference, and it would not matter if we went through the celphalic vessel. My rule is to go a little external to this groove and cut freely down to the capsule of the joint and give a wide exposure in that way. The next thing is to verify the *x*-ray findings. We have been taught to keep our fingers out of all traumatic bone lesions when we are operating on them, and theoretically it is a fine rule to follow, but I have never been able to handle one of these cases without getting my fingers in the wound itself. I would like to be able to do it, but I have not been so far.

In the first place, I want to know how the head of the humerus is lying, and, incidently, I have got to help it back into place, and I have not found anything so useful as my fingers and a suitable appliance. McBirney wrote a paper on this subject. He devised a special hook for prying the head of the humerus into place. I have not used anything of that kind as I am opposed to the use of special instruments of any kind. I used to buy any special instrument for a special purpose until I felt I was going to an unnecessary expense, and I have come to this conclusion after a few years of experience. It may be an early symptom of the onset of senility, but I have arrived at the conclusion that there are mighty few operations that cannot be done with the standard instruments we use in our every-day work, and the minute we get away from these standard instruments and by that I mean scalpels, scissors, artery forceps, and retractors—the minute we get away from these we get into trouble, because we do not use these special instruments often enough to become expert in their use. We have been able to get the head of the humerus into place by means of ordinary instruments. A good heavy pair of hemostatic forceps of the Ochsner type will enable you to get a grip of the head of the humerus, and with the aid of the finger one can usually manipulate it back into place with an assistant helping by moving the arm at an angle that gives the greatest muscular relaxation. It sounds fairly easy, but it is not easy. It often takes a good deal of patience and effort to effect that result.

Now, we will assume that the head of the humerus is back into the glenoid cavity; then it is a simple matter to bring up the shaft and get it into apposition; and we do nothing more. I have not found it necessary to plate these cases or to apply any fixation appliance. The jagged edge of the fragments has been sufficient to hold them in apposition when they are properly reduced. After closure has been effected I have placed a triangular splint in the axilla to hold the arm in a position of moderate abduction, and I have then used a plaster-of-Paris shoulder cap and have had the patient go to bed for two weeks. I believe that is important. If you let an adult with an injury of this character up and around you will have grief. By all means put the patient in bed until union is beginning. Two weeks is little enough.

I have given you an outline of the operative procedure for this class of cases, and nothing remains except to mention briefly the three cases I have had, because they bring out the points I have already mentioned more clearly than I could when speaking in the abstract.

Case 1.—The first case was a man, 44 years of age, a Government contractor. He was one of those men who under contract for the Government puts up buildings without being an actual Government employee. In stepping from a buggy in August, 1914, he fell on the left shoulder and was immediately cared for by a local physician, who went through the routine I have spoken about. He had the man put to sleep and examined him, but an *x*-ray diagnosis was not made from lack of facilities until the man was brought to me four days later, and then it was easy to see what the trouble was as soon as the *x*-ray picture was taken.

I operated in the way I have described, and the man left the hospital on the first of September, 1914. He reported to me a few times until the dressings were all dispensed with. Then I lost sight of him completely. By a peculiar coincidence the next time I heard of him was when I was down at Fort Riley in the summer of 1919, five years later. I was told that the Government contractor of the main building had been a former patient of mine, and on hearing his name I recognized it. So I looked him up. I was a little chary in looking him up because I thought he might be like one of those fellows who walks around with a crooked arm of whom it is usually said, "It is too bad he did not call a doctor in time." In this case the functional result was very good without deformity.

Case 2.—The second case was that of a young man, aged 19, who was injured by being struck by a timber as mentioned a while ago. The usual procedure was carried out in his case. He was examined under an anesthetic, and reduction was not effected by the physician who had charge of the case, and an *x*-ray taken the same day showed the condition of affairs. The operation in that case was done on January 14, ten days after the injury, and the same procedure was carried out as in the former instance. I used a triangular splint in the axilla and put on a plaster-of-Paris shoulder cap. This patient also made a good recovery. The last time I saw him was nearly four months after the injury, and I find a notation on my card that he had good, free rotary mobility of the shoulder. He can dress himself without difficulty and was able to return to his work the following Monday.

Case 3.—The third case was that of a woman, 68 years of age, who fell the short distance of two steps. She was injured on March 25 of this year, and she was seen by me five months later. The history was that she had fallen directly on the shoulder and had suffered a great deal of pain immediately thereafter, and there were a good many symptoms of shock. I think this had a good deal to do with the fact that it was difficult to make a satisfactory examination, and the case went along that way for five months. When seen by me I found she had a certain degree of functional impairment of the shoulder, and an *x*-ray picture showed there was a dislocation in the area just below the glenoid cavity and a fracture through the surgical neck. In this case I was unable to effect reduction. The glenoid cavity was practically obliterated, adhesions had formed, and it would have required the reconstruction of a new cavity to have put the head of the bone in. The head of the bone was firmly bound down and difficult to get at. After exploring thoroughly I decided that it would be to the best interests of the patient to remove by an excision the fragment, which I proceeded to do and removed the entire upper fragment. She has made a good recovery, but will always have functional impairment. I believe in a case of that kind in which the muscles and other soft parts are injured, with the joint itself out of commission for some time, especially in a patient at that period of life, the best results are obtained by not trying to do too much. I am sure she has obtained relief from the pressure of the joint, and she will at least be comfortable even though she has not received a full return of function.

RADIUM*

By Archibald Leitch, M. D.
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Radium gives off *alpha, beta,* and *gamma* rays.

The alpha rays are positive electrons and are very easily absorbed. A sheet of thin paper or the glass container of the radium is sufficient to absorb them completely; therefore, they are not to be considered in the treatment of diseases with radium, except in internal administration.

The beta rays are negative electrons, and are projected at about ten times the velocity of the *alpha* rays. (About as swift as light.) They have a varying power of penetration. One-tenth mm. of lead or silver will absorb 0.5 or 1 mm. of soft tissue. The next equal thickness of these materials will absorb 50 per cent of the remaining rays, etc.; so that it is necessary to have 10 mm. of tissue, or 1 mm. of lead or silver to absorb 99.9 per cent of the hard *beta* rays. The other metals cut off an amount of *beta* rays that varies with their specfic gravity.

Because the *beta* rays only penetrate about one-quarter inch, they are of value in healing only superficial lesions, and in the treatment of deeper lesions they should be screened off so as not to affect the skin or mucous membrane.

The gamma rays have enormous penetrative power and some will go through a foot or more of lead, while an inch cuts them down 50 per cent. They are different in character from the *alpha* and *beta* rays, inasmuch as they are ether vibrations of a very short wave length, and therefore are similar to light and *x*-ray, although very much more penetrating. It is also very interesting to note that for an *x*-ray tube to produce rays of the same velocity and wave length, it would require the use of potentials of from five hundred thousand to two million volts. The present *x*-ray tubes have a maximum of one hundred thousand volts (10 inch spark gap). (One might mention that there is an attempt at the present time to make tubes which will carry higher voltages.)

The *gamma* rays are used for all deep therapy. They are most effective up to the four-inch range, after which they become diffused, and thus weakened because of the lack of concentration.

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*Presented before the Ramsey County Medical Society, St. Paul, May 23, 1921.

In treatment of deep lesions the method of cross-firing is used to get sufficient concentration and therapeutic effect without burning the intervening skin and tissues.

In the treatment of disease, either the radium itself may be used or the emanations may be collected in capillary glass tubes and applied. The use of emanations is not practical unless one has at least 500 mg.

The mode of action of radiation on tissue is not yet well established, but, according to Ewing, the chief effect is on the cell nucleus, and especially the dividing nucleus, by means of which the growth of the cells is inhibited and they undergo a peculiar form of liquefaction necrosis and atrophy. Another important principle of its action is the effect upon the underlying tissue in which the tumor is growing. It stimulates the growth of granulation tissue, which excavates the cells of the tumor and causes a remarkable exudation of various round cells, the result being a natural and complete healing process.

The word *radium* is always used in connection with that of cancer. When all surgery has failed, then in desperation the patient is referred for radium treatment. Even then at times it gives startling results as we have found in our experience. It relieves pain, stops hemorrhage, and lessens foul-smelling discharges, making the late carcinoma case less offensive to those about him, as well as to himself.

When giving intra-uterine treatment, one must keep in mind the chance or danger of producing complete cessation of menstruation in the child-bearing period. Any radium application within the uterus over 25 mg. for longer than six hours may produce suppression. In the treatment of carcinoma of the uterus, suppression of menstruation naturally follows because of the large amount of radiation necessary to obtain any results. In the treatment of menorrhagia there is a question whether the radium affects the mucous membrane of the uterus by causing first, second, and third degree burns of the mucous membrane, thus destroying it; or whether the effect is produced by destruction of the cells of the ovary, thus causing a cessation of menstruation.

Ovarian tissue is very susceptible to the action of radium, having a resistance of only one-fifth of the resistance possessed by the epithelium of the skin. The mucous membrane of the uterus also has less resistance than the epithelium of the skin.

As the ovaries lie about 8 cm. from the uterine cavity, it seems quite reasonable to assume that the intra-uterine application of radium exerts its greatest effect on the mucous membrane of the uterus.

Benign tumors of the uterus that can be removed without requiring a hysterectomy, are better treated surgically rather than to treat with radium so as not to cause cessation of menstruation.

When intra-uterine radiation is advisable in the child-bearing period it is better to give small doses, say 50 mg., for four hours, and repeat after two or four months if needed. One should usually not give more than 700 mg. hours. We do not usually use radium in cases where pelvic infection is present, for it may light up an inflammatory process.

Early carcinoma of the fundus is healed best by surgery if the patient is in condition to stand it; otherwise it is a case for radium. No case, however severe, should be given up without a trial with radium, at least for its palliative effects. The surgical measures should be followed up by radium and *x*-ray.

Intra-uterine treatment of carcinoma consists of exposure of thirty to sixty hours of 50 mg., properly screened. This is followed up with external radium treatment. We lay off the abdomen in squares of one inch and place 50 mg. for two to four hours in each square. The *x*-ray is used over the back.

It is quite universally accepted that all malignant growths of the face, antrum, and upper and lower jaw should be first destroyed, if the tumor mass is large, with a hot soldering-iron, and then followed by radium and the *x*-ray.

In treatment of recurrences and metastasis from carcinoma of the breast, radium and *x*-ray are our only resort.

We always give at least two or three thorough radium treatments over the gland areas that drain the breast, namely, the supra- and the subclavicular regions and axillary, after all radical operations regardless of whether we can palpate metastatic growths or not. *X*-ray treatment are given over the sternum and the back for their possible benefit if there should be mediastinal involvement.

Cammeron says "the surgeon who operates for cancer of the breast without afterwards subjecting his patient to prophylactic radiation is not a surgeon, but an operator."

Only in inoperable carcinoma of the breast is radium alone used, and then for its palliative effects.

The pre-operative use of radium is growing in favor, as by this method any malignant cells which may be grafted on normal tissue or may have escaped into the lymphatic circulation have been deprived of their proliferating power.

When a pre-operative treatment is given, the reaction and its time of onset must be borne in mind. The reaction makes the danger of severe hemorrhage more likely during operation, and it produces contraction and distortion of tissues. *Beta* rays cause irritation of tissues beginning from three to seven days. Reaction from *gamma* rays begins after ten days. Hence the most favorable time to operate is from five to seven days after the treatment.

There has been considerable discussion as to the relative curative merits of radium and *x*-ray. There can be no doubt that radium should be the treatment of choice in superficial pathological lesions. There is, however, some difference of opinion as to their relative value in the treatment of deep-seated lesions. Some therapists are of the opinion that the Röntgen rays are of greater value in deep-seated lesions because of their wider and more general distribution, and because a larger percentage of Röntgen rays than *gamma* rays will reach a deep-seated lesion through one portal of entrance with the same amount of skin irritation.

As the skin can be divided into smaller squares for the application of radium than for the application of the *x*-ray, this gives greater opportunity for cross-firing with radium than with the *x*-ray without producing erythema of the skin.

Brilliant results have been produced by either of these agents. Physicians with a wide experience with both have also seen many failures where success was to have been expected. It is, therefore, well that we combine these agents in selected cases and use one to re-enforce the other so we may affect more patients favorably than is possible with either agent used alone.

I have mentioned only a few points which might be of interest regarding radium and its uses. There are many other locations where carcinoma may arise, although they are not so easy to get at for radium treatment and where the method of treatment and results are not so satisfactory as in those mentioned. Whether radiation should be applied to a certain surface carcinoma will depend a great deal on its type, size, location, and general condition of the patient. The method of treatment of each one should be decided then on its individual characteristics. There are many other pathological conditions aside from tumors in which radium is being used, too many to enumerate at this time.

SOME HEADACHES OF OBSCURE ORIGIN*

By F. L. Beck, M. D.
CHEYENNE, WYOMING.

Dr. G. L. Strader, with whom I am associated, has for many years recognized the fact that many cases of headache seemed to be due to nasal conditions and that many of them in which there was no purulent condition yielded very readily to cocainization of the nasal mucous membrane. Neither the cause nor the reason for the cure, temporary though it might be, was apparent. No doubt many oto-laryngologists have made similar observations. The welcome given Dr. Greenfield Sluder's monograph "Concerning Some Headaches and Eye Disorders of Nasal Origin," then, is not to be wondered at.

Sluder says he has had a deep and constant interest in the nasal factors of headaches and eye lesions since 1894, when Dr. A. E. Ewing argued that certain "asthenopics" were not really eye cases, but "nose cases of some kind not yet understood." He adds that this argument of Ewing's resulted in his becoming a rhinologist, and abandoning internal medicine, for which he had made an elaborate (ten years') preparation. In the effort to solve the problem he had the tissues from many patients' noses examined by many pathologists, some being the most renowned of their day, but it "remained a closed secret until 1909," when he presented the specimens to Dr. Jonathan

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*Presented before the Sioux Valley Eye and Ear Academy at Omaha, Nebraska, July 12, 1921.

Wright. "He at once read the story from the tissues by virtue of his learning as a rhinologist combined with that of the pathologist."

Sluder's book describes three varieties of disease of the nose which have as symptoms headache and more or less eye disorder:

1. Closure of the frontal sinus without suppuration.
2. The syndrome of nasal ganglion neurosis.
3. Hyperplastic sphenoiditis.

I propose to discuss, briefly, the first two of these nasal disorders.

As special features in the consideration of the nose as an anatomical and clinical region Sluder mentions, first, the fact that being the most protruding part of the face it is more exposed to injury than any other part. Falls and blows readily injure the nose. In the process of birth no doubt many nasal septa are dislocated from their bases, giving rise to deflected septa not otherwise accounted for. A slight deflection may seem of little or no consequence, but later in life it may be the cause of a low-grade vacuum headache.

Second, the human nose has the great disadvantage of having two paranasal cells, (the maxillary antrum and the sphenoid cell), without gravity drain. The same may be true of some of the ethmoid cells. Suppurative infection of such cells is less apt to subside spontaneously than that involving other cells which do drain by gravity. In other animals with nose pointing to the earth much of the time these sinuses are said to have a gravity drain.

Third, the upper air passage is constantly subjected to recurrent severe inflammatory attacks (coryza). These attacks bring about changes in other parts of the upper air passage as well as the nose. In the nose the periosteum bears an unusually close relation to the mucous membrane, which is primarily affected by these inflammatory attacks. In most other parts of the body the periosteum is separated from the mucous membrane by more or less loose connective tissue which protects it from inflammation.

Fourth, most of the cranial nerves leave the skull through close fitting bony foramina, fissures or canals in or about the sphenoid bone, a portion of this upper respiratory apparatus subject to the same pernicious influences which beset the nose. Then these nerve complications are greatly increased by the presence of the nasal ganglion lying almost submucously to the nose in the sphenomaxillary fossa, just behind the posterior tip of the middle turbinate bone, practically a paranasal cell. No other sympathetic or sensory ganglion is so exposed to surface influences.

These sketches (exhibited) are made from illustrations in Sluder's book, and some are from Wright's drawings illustrating points in the pathological processes involving the superior nasal sinuses. "As a rule," he says, "these have started from conditions very common in the nasal passages, conditions which come well within the definition of chronic inflammation."

So far as the bone changes are concerned he considers the pathological condition directly related to the normal process of bone growth in the nose. He looks upon this sort of inflammation as due to the substitution of the stimulus of *irritation,* from whatever cause, whether from external surface agents, bacterial agents from within, or systemic vasomotor disorders, for that mysterious physiological stimulus of growth which carries with it some agency which shapes the symmetry of form. In the pathological processes the agent that shapes the symmetry of form is absent or works badly, and we get unsymmetrical development in the hyperplastic, irregular, and purposeless cavities in the rarefying bone processes.

In Fig. 1 is represented an edge of bone lined with bone cells, osteoblasts, which are depositing lime salts in the formation of bone structure. In Fig. 2 these osteoblasts are being grouped together, their peripheries touching one another. Subsequently, where these surfaces are in contact, the limiting membranes disappear, the cell bodies are thrown into one, and out of several osteoblasts we have one large giant cell or osteoblast.

In some of these specimens we have bone-building process (hypertrophy), going on, in others a rarefying osteitis is taking place, while in still others hypertrophy and destruction are taking place at the same time.

The same pathological condition is present in greater or less degree in all these classes of nasal disorder under consideration.

Closure of the frontal sinus may occur from any one of a number of causes, or two or more of them may be operating at the same time. A narrow nose alone may be sufficient, likewise any other cause which presses the middle turbinate against the outer nasal wall. A deviation of the septum, even though slight, may easily do it. In order to maintain a patency of the infundibulum or hiatus semilunaris or of the normal opening into the anterior ethmoid cells it is necessary that the middle turbinate occupy a position somewhat raised from the lateral wall. They may also be closed by encroachment of the bulla of the ethmoid behind or the uncinate process in front. Swelling of the cavernous tissue in the vault of the middle meatus may do the same thing, even though the turbinate, the bulla, and the uncinate be in normal position and in normal condition otherwise, for these spaces are very small. The middle turbinate may be so thick as to be tightly pressed between the septum and the nasal wall. Contact of the septal tubercle, or of spurs or ridges on the septum, with the turbinate may be a sufficient cause. Edema of the vault of the middle meatus, that is, swelling of its soft tissues, is another cause. This usually terminates in the development of polypi. No doubt in many cases a coryza is sufficient to cause swelling of the tissues great enough to close the opening.

Sluder says that the various methods of closure of the frontal sinus may appear to be accidents of anatomy, but that he believes accidents of anatomy may be unfavorable to the communication of the sinus with the nose, and this is more likely to be true in narrow noses, yet the real underlying cause is usually a hyperplastic process, a thickening process, in the membrane and bone, and designated by the locality involved, as a "hyperplastic ethmoiditis," "hyperplastic sphenoiditis," etc.

After closure of the frontal sinus the air contained therein is absorbed to a greater or less degree, and to that degree we have a vacuum. The negative pressure in such a vacuum is sufficient to cause a dull ache or pain in its neighborhood. The most sensitive place is the floor of the sinus. Ewing was the first to recognize these cases and to describe the symptoms, which, briefly, are: "Inability to use the eyes for near work because of the headache which is produced thereby, and which is not relieved by glasses or eye treatment." It is accompanied by tenderness at a point in the upper inner angle of the orbit (Ewing's sign). At this point the roof of the orbit is made by the floor of the frontal sinus, which is very thin. Attached to it is the pulley of the superior oblique muscle. Use of the eyes pulls on this sensitive floor. Ewing's sign differentiates this class of headaches from all others except those due to pus in the frontal sinus.

As to prognosis: Nothing save an opening into the frontal sinus offers any relief. Diminishing the swelling of the soft tissues by simple astringents may be sufficient. Sluder, on failure to secure relief by such means in two or three weeks, removes two-thirds to three-fourths of the middle turbinate and opens the ethmoid labyrinth.

A case or two in point:

Mrs. T. came to us April 25th, some weeks after a middle turbinectomy had been done, complaining of severe frontal headaches, which were greatly aggravated by any attempt to sew or read. Removal of a large mass of granulation tissue which completely closed the infundibulum and the opening to the anterior ethmoid cells gave immediate and entire relief. Previously shrinking of this tissue with cocaine would give temporary relief, lasting from three to four days to two weeks.

F. R., aged 26, a university student, was compelled to give up his university work on account of pain which he described as rheumatism in the region of the frontal sinuses, between the eyes, and extending to the outer angles of the frontal bones. He had a very sharp horizontal ridge on the right side of the septum pressing into the inferior turbinate. Both middle turbinates were so hypertrophied as completely to fill the middle meatus, being tightly pressed against the septum and the inferior turbinates. A resection of both middle turbinates was done, the anterior ethmoid cells were opened, and the crest of the septal ridge was removed. Although this was done only two days ago and the nose was kept packed twenty-four hours, the patient declares he is now free from frontal headache for the first time in many months and that he began to improve immediately after the operation.

The nasal (Meckel's) ganglion occupies the upper part of the sphenomaxillary fossa just behind and above the posterior tip of the middle turbinate bone. Here it is enclosed by the very thin bony walls of the sphenoid, ethmoid, and maxillary sinuses, the lateral wall of the nose and a thin membrane closing the sphenopalatine foramen. It is, therefore, surrounded by the nose and paranasal cells. Its sensory roots come from the maxillary division of the fifth nerve. Its motor root is the great superficial petrosal, arising from the seventh nerve, this being joined by the great deep petrosal, its sympathetic root, to form the Vidian nerve which enters the ganglion. These nerves also lie in very close relation to the paranasal cells, especially the sphenoid.

The nasal ganglion sends branches to the sphenoidal and ethmoidal air cells, the periosteum of the orbit, the mucous membrane of all parts of the nose, the roof of the mouth, the soft palate, the tonsils, and the nasopharynx. Through its sympathetic root it is connected with the superior cervical sympathetic.

It will thus be seen that an inflammation of the nose or paranasal cells may easily affect the nasal ganglion, its roots and branches by direct extension or through the absorption of toxins. The symptoms arising from such involvement vary greatly and may be divided into the neuralgic and sympathetic types. Of the former there is pain at the root of the nose, in and about the eye, the upper jaw and teeth, sometimes the lower jaw and teeth, extending backward to the temple, the zygoma, the ear, the mastoid, and being especially severe about 5 cm. back of the mastoid. It may extend to the occiput and neck, the shoulder, arm, forearm, and even to the hand and fingers. There may be a stiff aching throat, itching or pain in the hard palate and nose, a metallic taste in the mouth. As sympathetic symptoms there may be ordinary symptoms of hay fever with severe sneezing, profuse nasal discharge, itching, burning and congestion of the eyes, which are bathed in tears. Work requiring near vision is difficult or impossible. Occasionally there is asthma.

Sluder treats these cases by applying half a drop of a saturated solution of cocaine direct to the internal surface of the nasal ganglion, and he says the effect is quickly to stop the secretion of the eyes and nose and to bring them back to normal, and the pain clears up as by magic. Repeated treatment may be necessary. He treats older cases with 2 per cent silver nitrate or 1 per cent formalin, or in still more obstinate cases he uses injections of phenol alcohol. He mentions very striking effects from the injection of the ganglion, among which are relieving the severest pain of photophobia, glaucoma, iritis, corneal ulcers, phlyctenular and interstitial keratitis, and the cure of a most pronounced red and enlarged external nose, a most severe writer's cramp, a most pronounced blepharospasm; and he explains the process only by expressing the belief that the sympathetic, by way of the nasal ganglion, conveys the pain sense from the lesions to the occiput and neck and that the nerve is blocked at that point.

R. W., aged 74, was referred to Dr. Strader April 20th complaining of severe pain in the temples the past two months. Recently pain has been severe about the eyes, temples, mastoid, and at a point about 5 cm. behind the mastoid. The patient is unable to sleep without medicine. The nasal cavities appear normal. Cocaine applied to each nasal ganglion gave instant relief. April 22d he said he had been free from pain for a day and a half. Has slight pain now. Treatment repeated. April 25th he reports perfect freedom from pain; treatment was applied again with no return of trouble.

Mrs. R. E., aged 29, has been having the past two years severe headaches, which were attributed to the fact that she had puerperal eclampsia following the birth of a child June, 1918. She was scarcely conscious for two weeks; had central retinitis, with vision reduced to light perception. Vision gradually returned to 20/20, but the eye conditions were supposed to be responsible for the headaches. Two third molars had been removed with no benefit. Sinuses were clear. Inflamed areas can be seen over the nasal ganglia. Cocainization of this area stopped the pain absolutely. About a week later she returned with a slight headache, treatment of which gave relief for two weeks. A third cocainization was done, since which the patient has been free from pain.

J. A. R., aged 70, Justice of the United States Circuit Court, July 7, 1921, has been having headache for a week and previously at frequent intervals for a number of years. Had pain in and about the eyes and behind the mastoid, complaining more of the mastoid symptom than the other. Physicians have never been able to give him relief. Cocainization of the nasal ganglion gave complete relief from all pain within ten minutes. He promised to return on return of symptoms, but has not shown up yet.

I have presented this paper, gentlemen, for two reasons: There are too many people going about from one oculist to another for relief from headaches who are not relieved. Dr. Strader says that these people who have consulted all the oculists they can afford to see and who have a refractive error of only a quarter to a half diopter are not eye cases at all, but are nose cases. Then we have altogether too many aspirin fiends. They used to be acetanilid addicts, but now they are taking from fifteen to twenty-five grains of aspirin a day for the relief of headache.

NEW TYPE OF VALVES AND GASOMETER FOR THE COLLECTION OF EXPIRED AIR

By Edwin L. Gardner, M. D.

MINNEAPOLIS, MINNESOTA

The large numbers of gasometers and types of valves offered to the medical profession at once suggest the difficulty in obtaining perfectly satisfactory apparatus.

We have used the Haldane Gas Analysis Apparatus and Gasometer, rather than the more direct methods of the Benedict Portable Respirometer or its modifications. The respiratory quotient has been determined in each examination and we believe the method described by Boothy and Sandiford is more accurate, better controlled, and just as practicable as with "portable machines."

In order to obtain the proper ventilation and a normal respiratory quotient, every possible error must be eliminated. The greatest error arises from two principal sources: (1) improper breathing or excitement of the patient and (2) some defect in collecting the air from the patient into the gasometer. Errors arising from the patient can be recognized only by having considerable experience with the test. Leaky valves will be shown (1) by dropping of the gasometer bell during inspiration, (2) abnormal variations of the respiratory quotient, and (3) low ventilation.

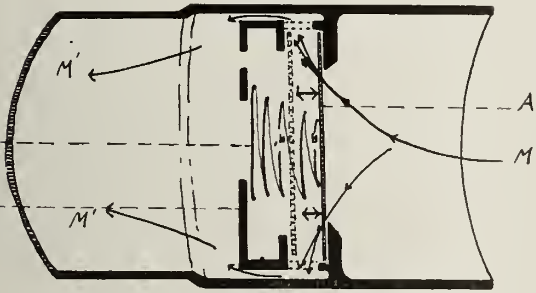

Fig. 1. Intake Valve.

In the early part of our work we found that difficulties arising from the masks and valves obtained in the market caused many difficulties or they had the disadvantage of lasting only a brief time. Through the courtesy of the Heidbrink Company of Minneapolis, we were given the opportunity to have a new type of valve constructed, as well as a comfortably fitting mask. The mask is nothing new except it is one modeled from a composite cast obtained from a large number of different types of faces.

The valves (Fig. 1) are of simple construction but are accurately machine-made. They are inclosed in 1⅛ inch brass tubing, into which there is inserted a housing (B) for the very thin, accurately seated aluminum valve (A). A very fine watch-spring spiral (C) is just strong enough to close the valve, but not so stiff as to cause any appreciable resistance to the air current.

The Gasometer (Fig. 2) is made of copper with a bell and the usual water seal. No new principles are employed. The chain counterbalances the weight of the bell. The tank is portable in that is may be rolled from one room to another. Reference to the figure will show the details.

This apparatus has been used in about two thousand determinations, and, although not entirely free from defects, we have found it the most satisfactory of any which has to date been offered.

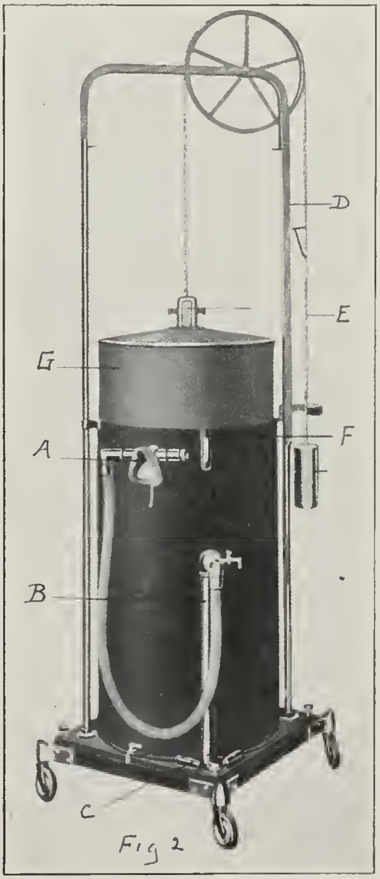

Fig. 2.

A. Mask and valves.
B. Intake pipe.
C. Leveling device.
D. Scale for reading liters of gas.
E. Chain counterbalancing bell (G).

THE
JOURNAL-LANCET
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The Official Journal of the
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JANUARY 1, 1922

OUR ANNUAL GREETING

THE JOURNAL-LANCET in preparing for the year 1922 offers to its readers its sincere thanks for the loyal support that has been given it for so many years.

The promulgation of what is new in medicine throughout the Northwest in the field covered by THE JOURNAL-LANCET is to be carried out with the same care and efficiency that have characterized its previous efforts.

We have made many mistakes, undoubtedly. Sometimes the editor is at fault, sometimes the publisher is at fault, and the printer also comes in for his share of the blame, and the proofreaders are responsible for some typographical and perhaps grammatical errors. Considering the situation from a general viewpoint, the subscriber has been lenient and courteous. Occasionally he objects, but we do not blame him, and we are willing at all times to rectify errors and make any changes necessary.

The circulation of THE JOURNAL-LANCET has kept up in spite of the feeble efforts made against it by a few of its inspired fault-finders, but we have learned by sitting tight and getting out a good clean journal that we are still appreciated. We expect, too, to improve the reading pages of THE JOURNAL-LANCET, and to occasionally add some features which it is hoped will be more or less interesting. We have been able to present so far, particularly in the past few months, a large number of case-reports, and these we hope to continue throughout the year. Also, we may take the liberty of inserting, from time to time, certain other reading matter of a non-medical type, and this we hope will meet with favor from our readers.

THE JOURNAL-LANCET is on a sound foundation,and it is well able to keep itself up to the same standard that has been maintained for many years past, and we shall be entirely satisfied if we can continue to express ourselves on good paper with good printing and in a liberal number of good reading pages.

At the present time we have a large amount of material on hand for future publication, and there seems to be no possibility of this diminishing. It may be a little additional expense to the publisher, but that he seems cheerfully willing to assume.

A banker said recently that, if anyone can carry on his business and break even for the next year, he should be perfectly satisfied. THE JOURNAL-LANCET hopes to be able to do this in any event, and perhaps increase its revenue by more subscribers. Then, too, with a semimonthly issue of THE JOURNAL-LANCET we are able to print articles within a reasonable time after their reception.

With the advance in medicine, which is really going at a tremendously rapid pace, and with the various loose-leaf publications and the abstracted material which is sent out over the country by abstracting medical systems or agencies, it is essential that the articles we receive should be printed as quickly as possible. Nothing irritates a man so much as to put in time and energy upon his thesis and then have it delayed for eight or ten months. This we hope to avoid by keeping up with the articles as rapidly as we can.

It is hoped that our readers will support us in whatever we undertake that is right, and that they will make at least one fixed resolution, to keep up their subscription to the paper; and in return for this the publisher and the editor will make an equally good resolution to put out the best reading matter in the most attractively published medical journal in the Northwest. Making too many resolutions may mean skating on thin ice, and if one resolution breaks through others are likely to follow.

THE JOURNAL-LANCET appreciates that the

times have been very precarious financially, commercially, and industrially, and that we may yet have difficult problems to meet. It is true that all over the country medical practice has dropped off to a distressing degree, but in spite of that we must all make preparations for rehabilitation, which is sure to come and not long hence.

It is a good time to do one's reading, to get one's account books in order, to see that case-records are properly made and filed, and to be prepared for any emergency in medicine. The present is no time to be depressed, but it is a time to be optimistic. The optimist is one who is smiling, cheerful, and expectant at the very time when he is getting the worst of it.

We are quoting from our old time writer, Mr. Anon:

Backward, turn backward, Oh Time, in your flight!
Give back the color to hair turning white,
Put in its place each original tooth,
Give me the pep which I had as a youth—
Grant me, I pray you, my simple request,
And then I'll yell this just as loud as the rest:
HAPPY NEW YEAR!

THE FIGHT ON TUBERCULOSIS

Death-rates do not in themselves tell a conclusive story regarding the increase or decrease of disease in a given population area. But a steady drop in the death-rate from any disease throughout a period during which a steady, determined campaign has been waged against this disease suggests a cause and effect relationship worthy of consideration.

In 1908 the death-rate from tuberculosis in America was approximately 200 per 100,000 population; by 1921 this figure had dropped—shall we not say was reduced?—to 114 per 100,000. It was in 1908 that the first nation-wide sale of the familiar tuberculosis Christmas Seals was put on, and the ensuing years witnessed an unusually widespread, continuous, and determined campaign of education against tuberculosis. It seems unlikely that this result could have been achieved solely through efforts to provide more adequate means for the treatment of the tuberculous, as important as is this phase of the work financed by Christmas Seals. It is more likely that popular enlightenment in the means of preventing the disease is slowly but surely eliminating tuberculosis as a cause of untimely death among an increasing portion of our population.

The Hennepin County (Minnesota) Tuberculosis Association is an example in point. This organization was largely instrumental in securing provision this year for 300 additional beds at Glen Lake Sanatorium. But of equal, if not greater, importance were the leaflets, moving pictures, health talks, health exhibits, health programs, the "health habit" campaign in schools, and the publicity growing out of the Christmas Seal sale—all of which pointed the way to healthful living and disease prevention, and aroused many to seek out competent physicians for diagnosis and possible sanatorium care.

THE ANALYTIC EXPERT

The association of Freudians and alienists in a recent murder case in Brooklyn brings out the possibilities of confirming a diagnosis by combining the two methods of examination.

A woman walks into a doctor's office in Brooklyn and without further ado shoots and kills him. She walks out of the office with the same unconcern with which she entered. Very naturally, she was apprehended. She explained the situation by claiming that the doctor had annoyed her and disturbed her, and had taken liberties with her, which made it necessary for her to leave the country for a time and go elsewhere for rest, but she found she was unable to forget her experiences. The result was that the murder took place on her return to the city.

She was examined by a group of Freudians, who in their method of psycho-analysis brought out the underlying factors connected with the shooting, and after mature examination and deliberation decided that she had what they called a "vengeance impulse." Later, she was examined by a group of psychiatrists, mainly from the State Hospital, who, after hearing the history of the case and making their tests, both physical and mental, but evidently largely mental, decided that the woman was a paranoac, and they maintained that she was a proper subject for confinement in a hospital for the insane. Pending the hearing of the insanity inquiry the woman is still incarcerated, and we may know later whether she is to be sent to a hospital for the insane or is to be considered sane and held accountable for the murder.

There is no inconsistency in the findings of the two examining boards, for, if the Freudians brought out the vengeance-impulse theory, it probably was based upon some idea group, or ideas, to which she held tenaciously; and probably on the basis of the first examination the psychiatrists decided she was a paranoac from the fact that she had attained a fixed, systematized, delusional state.

The association of these two examining boards brings out the fact very clearly that the examination of a person suspected of a mental disorder, as well as the examination of a patient for a physical disorder, should be very thorough and complete. In order to attain this degree of efficiency in diagnosis there must be a very searching inquiry into the history of the individual, as well as into the history of all ancestors of such individual.

The history of the ancestors sometimes furnishes the main clue to the defect or the system of ideas which are exhibited in the life of the individual under scrutiny. There is no question in our minds to-day but that hereditary syphilis is much more common than we usually have believed, and, consequently, the discovery of diseases in the ancestors is very helpful in determining the course of development in the life of the child.

Many old disease elements are brought out by a searching analysis of the causes of death, the character of the ailment, and the mental characteristics of the ancestors. Quite equally so is the analysis of the child or the adult, and through his entire period of life. The condition of the mother at the time of conception; the difficulties which have been incident to her pregnancy; the character of the labor and the disturbances, if any, of the mother at the time of delivery; the history of injuries, falls, anxieties, disease states, are just as important in the life of the individual in the final analysis of the case when it is ready for final discussion. Then, too, the child in its growth, the various diseases contracted during childhood, the sources and courses of infections, the surroundings, training, and education of the child in early life, frequently furnish the clue upon which to base a final diagnosis. Tracing the individual through the stages of puberty, through young adolescence, and up to the time of the terminal disease or the development of a mental twist, and the character of the crime, are the essential analytical points for the examiner in determining the mental or physical state of the patient.

Whether we accept the original and modified Freudian idea or not we are bound to accept the suggestion that the Freudian has made in the careful scrutiny, the searching analysis, of important data. Everyone who has had experience with nervous or mental disorders knows full well that all the early history of the patient has an important bearing upon the conditions at the time of investigation, and will give them their true value.

All of us are apt to overlook the mental attitude of a person. How can one know by the cursory examination so commonly employed that behind the mask-like face of the patient there is either a morbid idea or a pathological fear? Only the trained psychiatrist will think of those things. Others will be rather apt to dismiss them as unimportant, whereas they may explain the whole situation. In many cases where the psycho-analysis is carried on by a psychiatrist much time is spent in getting at what he believes to be the facts in the case. On the other hand there are many cases decided by a study of the history and a reasonable inquiry into the mental status and the mental attitude of the individuals.

Undoubtedly these combined methods are going to be employed in criminal cases before our courts, but they must be treated from a very broad point of view, and the entangling and sometimes meaningless words that the Freudian uses should be translated into plain, common, every-day English. It is rather a delicate task to propound these psycho-analysis theories before the average jury. It is a much more simple matter to give a plain, frank statement of the conditions of the case in review, so that the jury may comprehend and analyze it for themselves.

BOOK NOTICES

Physical Diagnosis. By W. D. Rose, M. D. Lecturer on Physical Diagnosis and Associate Professor of Medicine, University of Arkansas, Little Rock, Ark. Second edition. Cloth, pp. 736, illustrated. St. Louis, Mo.; C. V. Mosby Company, 1921.

The book follows the general scheme of the first edition, but is about twice the size and has been amplified and partly rewritten. Some additions along the lines of clinical anatomy, pathology, and physical signs, has been made. There is a comprehensive and well-written chapter on radiographic diagnosis by Dudley E. Mackey, M. D., New York, a feature not in the first edition. The subject is well covered, including many illustrations.

The examination of the various anatomical divisions of the body is taken up in a logical, thorough, and orthodox manner; and the phraseology is correct, making it an ideal text and reference book.

It is well printed on good paper, clear type. There are many illustrations of a practical value, especially to the student.

The section on the circulatory system is especially readable, and shows careful preparation, and is full and explicit.

E. R. Barton, M. D.

The Allen Treatment of Diabetes. With a series of Graduated Diets. Lewis W. Hill, M. D., and Rena S. Eckman, with an Introduction by Richard C. Cabot, M. D. Fourth edition, 1921, Boston, W. M. Leonard.

Although the last edition of this small handbook contains no new material, it still remains of great value to both the physician and the patient in the dietary treatment of diabetes mellitus. What it may lack in comparison to Dr. Joslin's well-known "Diabetic Manual" in the matter of the author's contagious personal ardor and enthusiastic hopefulness, as well as thoroughgoing completeness, is compensated for in the greater simplicity of presentation, and, particularly, in the very clear and attractively presented series of graded diets. For the patient whose mind is wholly occupied in struggling through the correct diabetic diet, these graded dietaries are perhaps the simplest and most ample he can find. The practitioner, too, who wishes to order any given diet in terms of grams of protein, fat, and carbohydrates, can do so in terms of a definite menu which is intelligible to the patient.

The title is perhaps somewhat of a misnomer, as the description of the Allen treatment is of the sketchiest kind. For the practitioner such handbooks as Joslin's are preferable, but for coöperation between patient and doctor, this handbook is as satisfactory as any we have seen.

An increasing number of such small books for patients, in clear and simple terms, is eminently desirable.

Harold Rypins, M. D.

Diseases of Children: Designed for the Use of Students and Practitioners of Medicine. By Herman Sheffield, M. D. Nearly 800 pages; 238 illustrations, mostly original; and 9 color plates. St. Louis; C. V. Mosby Co. 1921.

In outline and general treatment of the subject matter, this textbook is similar to a number of its predecessors. There is some question about the pressing need of texts of this kind.

Many of the subjects are dealt with in a stereotyped and rather superficial manner. This it not true, however, of the chapters on "Physical Diagnosis" and on "Feeding and Alimentary Disturbances." The former chapter is carefully elaborated in minute detail and is no doubt the most valuable contribution of this text.

The author has had wide clinical experience and gives the reader the benfit of this in the form of useful suggestions and practical therapeutics.

F. W. Schultz, M. D.

Keen's Surgery, Volume VIII. By Surgical Experts. Edited by W. W. Keen, M. D., L. L. D., Hon. F. R. C. S., Eng. and Edin., Emeritus Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia. Octavo of 960 pages with 657 illustrations, 12 of them in colors. Philadelphia and London: W. B. Saunders Company, 1921. Price: Volume VII and VIII and Desk Index Volume, cloth $25.00 net per set. Sold by subscription.

This, the last volume of Keen's Surgery, is one of the finest productions it has been the reviewer's pleasure to read.

Chapter XXVI, "The Endocrine System of Glands," by Vinson, and the three chapters on the thyroid by Drs. Mayo, Wilson, and Kendall, are excellent, bringing up to date our recent knowledge with reference to the chemistry, physiology, and therapy of these glands.

The chapter, "Surgery of the Hypophysis" by Adson, is deserving of special note.

The chapter on "Amputations" by Taylor is excellent, and is a summary of many of the valuable deductions gained by the numerous amputations necessitated in the army. The conclusions regarding artificial arms and legs are bound to be of value in civil industrial surgery. The same remarks may also apply to the chapter entitled "Operations on Bones and Joints," by Warbasse.

The chapters on "Surgery of the Head," by Neuhof and "The Surgery of the Fifth (Trigeminal) Nerve" contain a fund of recent knowledge.

It is impossible for the reviewer to enumerate all of the subjects treated, but the work of Jackson on "Direct Laryngoscopy, Bronchoscopy, and Esophagoscopy" describes the wonderful advances in this particular field, a large number of these advances being especially due to the work of Jackson himself.

The chapter on "Surgery of the Thorax" deals with the large number of war wounds of this part, and sets forth many useful conclusions which may be applied to civil surgery of the chest, particularly in the treatment of empyema.

The chapter on "Surgery of the Abdomen and Pelvis" by Crile is extremely brief, and gives the principles of the treatment so successfully followed by Crile at Lakeside Hospital. The chapter is at the same time sufficiently long to give the reader a working knowledge of each of the individual points of his technic.

The work of Bransford Lewis on "Surgery of the Bladder and Ureters" is of great value, and shows, with many illustrations, the results which are being accomplished through the operative cystoscope, together with many other advances in genito-urinary surgery.

The other chapters, although not mentioned, contain much valuable information. A great deal of the work throughout the volume is based on the results of experiences during the World War. This is particularly true in the work on the treatment of wounds of the face and thorax, the correction of deformities, physiotherapy, etc.

The volume contains so much condensed information that, in the reviewer's opinion, it is one of the best works which a surgeon can add to his library.

Stanley R. Maxeiner, M. D.

NEWS ITEMS

Dr. C. H. Sweet has moved from Winner, S. D., to Newell, S. D.

Dr. James O. Lee has moved from Mt. Vernon, S. D., to Egan, S. D.

Dr. Richard R. Cranmer, of Minneapolis, was married last week to Miss Mildred Wheeler, also of this city.

Dr. John J. Sippy, epidemiologist of the Montana State Board of Health, is urging the people of Montana to be vaccinated.

Dr. R. D. Carman, of the Mayo Clinic, was elected president of the Radiological Society of America at its annual meeting in Chicago last month.

Dr. L. W. Saterlee, after practicing at Alexandria over sixteen years, has moved to Parkers Prairie.

Dr. Neil McLean has located in Devils Lake, N. D., instead of in Churches Ferry, as stated in our last issue.

Dr. C. J. Maercklein has moved from Beach, N. D., to Elk Mound, Wis., where he takes up the practice of the late Dr. J. E. Bingham, of that place.

The Mower County Medical Society has started a movement to organize a tri-county medical society composed of physicians in Mower, Steele, and Freeborn Counties.

Cook County (Minnesota), through a citizen's organization, has subsidized a physician; now the people ask the County to employ him. Dr. McKechnie is their choice.

Drs. C. J. and G. C. Nedry, of Medford, Wis., are in Vienna taking an extended course of postgraduate work. They write that the work is wonderful in character and quantity.

Dr. E. M. Watson, who recently moved from Hope, N. D., to Fargo, N. D., has become associated with Dr. J. P. Aylen, of Fargo, and will confine his practice to internal medicine.

Dr. J. M. Fischer, who has been on the staff of the Lenont Hospital at Virginia for ten or twelve years, has moved to St. Peter, where he will occupy the office of the late Dr. G. F. Merritt.

Dr. Frank W. Brey, of Wabasso, was married last month to Miss Elizabeth Daub, of the same place. Dr. Brey was a 1910 graduate of the Medical School of the University of Minnesota.

Drs. W. J. McCarthy and Harry B. Crimes, of Madelia, who recently formed a partnership, are rejoicing over the completion of their handsome new office building into which they move this week.

Dr. A. J. Chesley, secretary of the State Board of Health, advises the school board of Minnesota to have all school children vaccinated. A serious outbreak of smallpox is reported in Kansas City, and could quickly reach Minnesota.

The Brown-Redwood County Medical Society suit against the Minnesota State Medical Association to compel re-instatement in the State Association, has been tried and taken under advisement by the court. It will be decided probably this week.

The Waseca Counnty Medical Society elected the following officers at its annual meeting held in Waseca last month: President, Dr. J. F. Lynn, Waseca; vice-president, Dr. H. O. Hagen, New Richland; secretary-treasurer, Dr. H. A. Miller, Waseca.

Dr. Olaf J. Veline, of Minneapolis, died on Dec. 13 at the age of 52. Dr. Veline, who was born in Sweden, studied medicine in Germany and came to America in 1887. He graduated from the Minneapolis College of Physicians and Surgeons in 1897.

At the annual meeting of the Central Minnesota Medical Society, held last month at Willmar, the following officers were elected: President, Dr. P. C. Davison, Willmar; vice-president, Dr. A. W. Robertson, Litchfield; secretary-treasurer, Dr. J. C. Jacobs, Willmar.

An American Legion hospital is to be built at Rochester, and will cost several hundred thousand dollars. The national and state organizations will divide the cost of the hospital. It will be called the "Minnesota Memorial Hospital." It was a happy thought to locate the hospital at Rochester.

The Medical Forum of St. Paul, which was organized a year ago for promoting interest and discussion in medical sciences, has closed a year of successful work. The Forum is composed of fourteen members and holds monthly meetings. Dr. H. E. Richardson, of St. Paul, is the Forum's secretary.

An attractive library building has been built in Wahpeton, N. D., by Drs. Lancaster (Blake and William,) and now houses the medical libraries of themselves and of their father and brothers, the latter of whom was killed in an automobile accident last summer. This library is open to all physicians of Wahpeton.

The Steele County Medical Society held its annual meeting last month at Owatonna, when the following officers were elected for 1922: President, Dr. W. J. Daily, Blooming Prairie; vice-president, Dr. J. F. Smersh, Owatonna; secretary, Dr. J. W. Andrist, Owatonna; treasurer, Dr. F. M. Smersh, Owatonna.

Dr. Earl K. Pfaff, who formerly practiced in Minneapolis and who has spent a year or more in special surgical studies in Chicago hospitals, has purchased the practice of Dr. J. J. Gelz, of Richmond, together with an interest in the Community Hospital of that place. Dr. Gelz will spend a year or more in postgraduate work, probably in Europe.

The Tri-County Medical Society of South Dakota held its annual meeting in Vermilion, S. D., last month, when the following officers were elected: President, Dr. D. W. Matthaei, Fessenden; vice-president, Dr. John Crawford, New Rockford; secretary-treasurer, Dr. Hubert Van de Erve, Carrington; delegate, Dr. J. R. Mackenzie, Carrington.

These are the days when free clinics thrive. Our exchanges are filled with notices of free clinics of every description and almost every clinic is conducted by a specialist of high standing, giving many hours of service to the public. Clinics in children's diseases, in the venereal diseases, in tuberculosis, and, last but not least, in cancer, are given in large numbers throughout the Northwest.

At the December meeting of the Huron (S. D.) Medical Society papers were presented by the following men: Dr. J. C. Shirley on the "Early Diagnosis of Injuries of the Kidneys;" Dr. W. H. Saxton on "The Use of the Duodenal Tube in Drainage of the Gall-Bladder;" Dr. Benj. Thomas on "Perforating Injuries to the Eyeball." The tuberculosis survey in several counties was discussed.

The Cass County (North Dakota) Medical Society held its annual meeting in Fargo last month. The following officers were elected for the current year: President, Dr. Sverre Oftedahl, Fargo; vice-president, Dr. J. F. Hanna Fargo; secretary, Dr. F. I. Darrow, Fargo. Ten new members joined the Society, and six Moorhead (Minn.) physicians and surgeons were elected honorary members.

The Red River Valley Medical Association held its annual meeting on Dec. 15. Papers were read by Dr. Theodore Bratrud of Warren; and Dr. C. H. Clark, Greenbush. The following officers were elected: President, Dr. H. M. Blegen, Warren; vice-president, Dr. O. E. Locken, Crookston; secretary, Dr. Lyle Brown, Crookston; delegates, Dr. G. S. Wattam, Warren, and Dr. O. F. Melby, Thief River Falls.

The Sioux Valley Medical Association holds its annual meeting on the 25th and 26th of this month in Sioux City, Iowa. The program is not yet complete, but the following physicians will present papers: Dr. Wm. Jepson, Sioux City, Iowa; Dr. Franklin R. Wright, Minneapolis; Dr. W. Eugene Wolcott, Omaha, Neb.; Dr. A. W. Adson, of the Mayo Clinic, Rochester, Minn.; Dr. N. O. Ramstad, Bismarck, N. D., and Dr. J. A. Weinberg, Omaha, Neb.

Dr. A. C. Anderson, of Rush City, was killed on Christmas day in an accident. He was called from home to go into the country, to set a broken arm, and, in returning, his automobile was crushed by a train as he was crossing the railroad. Dr. Anderson died at the age of 54. He was a graduate of the University of Minnesota Medical School, class of '92, and had practiced at Rush City over twenty years. He was a brother-in-law of Dr. G. G. Eitel, Supt. of the Eitel Hospital, of Minneapolis.

The Grand Forks (N. D.) District Medical Society held an unusually large, interesting, and successful meeting in December. Dr. M. B. Haldorson, of Winnepeg, Canada, presented a paper on the "Treatment of Tuberculosis," which was discussed at length by the superintendents of the tuberculosis sanatoria at Dunseit, N. D., and at Grand Forks, Minn., Drs. J. G. Lanont and Guy Brelsford, respectively, and others. The entire program was both interesting and instructive. How can a large percentage of the men living in such a district absent themselves from such a society? We do not understand.

Dr. H. E. Michelson, of Minneapolis, has just returned from an extended visit to the clinics of Paris and Vienna. In Paris he worked under Prof. Brocq at the St. Louis Hospital, and in Vienna under Professors Oppenheim and Kren. The welcome to Americans in the European clinics is exceedingly cordial and the material is without limit. The teaching services have reached pre-war conditions, and living conditions, except housing, are good, and prices are very moderate, even lower than before the war; but the high ocean transportation offsets this. Dr. Michelson says there are 30 or 40 American doctors in Vienna, and that English speaking professors can be found in every branch. He recommends the spring, summer and fall months as the best season for visiting Vienna because of the shortage of housing facilities in winter, when the refugees flock into Vienna.

The following surgeons from this territory attended the annual meeting of the Western Surgical Association, held in St. Louis last month: *Minnesota*—Dr. W. A. Coventry, Duluth; Dr. E. S. Judd, Rochester; Drs. Robert Earl, H. P. Ritchie, and W. A. Dennis, St. Paul: Drs. W. W. Kimball, A. T. Mann, E. R. Hare, A. C. Strachauer, H. B. Sweetser, and A. E. Benjamin, Minneapolis; *South Dakota*— Dr. G. G. Cottam, Sioux Falls, and T. F. Riggs, Pierre; *North Dakota*—Dr. J. P. Aylen, Fargo; *Montana*—Dr. Fred F. Attix, Lewistown, and Dr. T. C. Witherspoon, Butte. The following were elected officers for the current year: President, Dr. Miles F. Porter, Ft. Wayne, Ind.; first vice-president, Dr. Vilroy P. Blair, St. Louis, Mo.; second vice-president, Dr. J. Frank Corbett, Minneapolis; secretary-treasurer, Dr. W. A. Dennis, St. Paul. The 1922 meeting will be held in Minneapolis.

ST. PAUL CLINIC WEEK

The tentative program of the second annual session reaches us too late for publication in full in this issue of The Journal-Lancet. It occurs on the 10th, 11th, 12th, and 13th of this month. The program consists of papers and clinics by the leading St. Paul men, with addresses by the following invited well-known speakers: Drs. Isaac Abt and C. L. Mix, of the Medical school of Northwestern University, Chicago; and Dr. J. C. Bloodgood, of Johns Hopkins. Other outside speakers will be present.

The Minnesota, Wisconsin, and North Dakota Sections of the American College of Surgeons have a meeting in St. Paul on the 9th, which will attract many of the members of the College from these states. A public mass meeting will be held Monday evening under the auspices of the College, and addresses will be given by distinguished members of the College.

The annual meeting of the Northwestern Medical Officers' Association of the World War will also be held in St. Paul on Tuesday, the 8th.

The Minnesota Academy of Ophthalmology and Oto-Laryngology will give a banquet on Jan. 12th, to which all visitors are invited.

On Wednesday evening the St. Paul physicians will entertain the visiting physicians in royal style.

PHYSICIAN WANTED

An experienced physician wanted in a good live Montana town of 1,200, in irrigated district. Must be a good man. Nothing to buy. Full particulars on request. Address 194, care of this office.

YOUNG DENTIST WANTED

A young energetic dentist is wanted in a South Dakota town of 1,200 people with an up-to-date hospital and the *x*-ray apparatus of a physician at his service. Ability to speak German would be to his advantage. A chance of a life time. Address 195, care of this office.

P. AND S. SYSTEMS FOR SALE

I have a McCaskey Cabinet and Desk System for sale cheap. Will sell either on terms. Address 196, care of this office.

HOSPITAL FOR SALE

On account of joining a group in city, a new, well-built, pressed-brick, 35-bed hospital building in a good town in the northwest is offered for sale. Modern and thoroughly equipped from basement to attic. An excellent location for practice of medicine and surgery, especially for one speaking German or Scandinavian or both. Small amount of money will handle it. Address 199, care of this office.

LOCUM TENENS WANTED

To take charge of a general practice in a central Minnesota town of 800 from February 1 to March 15. Community mostly German and Catholic. State age, and salary wanted. Address 201, care this office.

X-RAY APPARATUS FOR SALE

A Scheidel-Western X-ray Coil, 220 D. C., 25 Ampere, size 16, tube stand, and lead-glass bowl; all in good condition. For sale for $125. Address 202, care of this office.

PRACTICE AND DRUGS FOR SALE

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PHYSICIANS LICENSED AT THE OCTOBER (1921) EXAMINATION TO PRACTICE IN MINNESOTA

Name	Where and When Graduated	Address
	UPON EXAMINATION	
Baskett, Edgar Drane	Johns Hopkins, M.D., 1919	University Hospital, Minneapolis
Baughn, Henry Alden	U. of Pennsylvania, M. D., 1917	Rochester, Minn.
Brown, Philip Walling	U. of Pennsylvania, M. D., 1920	Rochester, Minn.
Chaney, Wm. Calvert	U. of Pennsylvania, M. D., 1917	Rochester, Minn.
DesBrisay, Harold A.	McGill, M. D., 1917	Rochester, Minn.
Fardy, Martin J.	Wash. U., M. D., 1918	Rochester, Minn.
Foucar, Hans Olding	Western U., Ontario, M. D., 1917	Rochester, Minn.
Foulds, Gordon S.	U. of Toronto, M.B. 1914	Rochester, Minn.
Grant, Hendrie Walter	Bowdoin, M. D., 1920	Miller Hospital, St. Paul, Minn.
Jepson, Paul Newton	U. of Pennsylvania, M. D., 1920	Rochester, Minn.
Joseph, Edward Gordon	U. of Edinburgh, M. B., 1918	Rochester, Minn.
Lockwood, Ambrose L.	McGill, M. D., 1910	Rochester, Minn.
Luden, Georgine M.	U. of Munich, M.D., 1912	Rochester, Minn.
Masson, Duncan M.	U. of Toronto, M.B., 1920	Rochester, Minn.
McCorvie, John Edward	U. of Toronto, M.B., 1914	Rochester, Minn.
McNeal, Morley Daniel	Johns Hopkins, M.D. 1917	Rochester, Minn.
Mebane, Donald C.	Columbia U., M.D., 1920	University of Minn., Minneapolis
Merrill, Urban Howe	Bowdoin, M. D., 1920	Minneapolis, 621 Beacon, S. E.
Mitchell, Jos. I.	U. of Tennessee, M. D., 1919	Rochester, Minn.
Moore, Thos. David	Vanderbilt, M. D., 1916	Rochester, Minn.
Mulholland, Stanley C.	U. of Minnesota, M. B., 1921	Rochester, Minn.
Ross, James Wells	U. of Toronto, M. B., 1915	Rochester, Minn.
Schoonover, Frank S., Jr.	Columbia U., M. D., 1918	Rochester, Minn.
Sutherland, Chas. Goldie	U. of Toronto, M.B., 1907	Rochester, Minn.
Weir, James Fisher	Western U., M. D., 1918	Rochester, Minn.
	THROUGH RECIPROCITY	
Abrams, Wilmer David	U. of Pennsylvania, M. D., 1919	Rochester, Minn.
Andres, Rudolph Geo.	American Col. Med. & Surg., M. D., 05., Loyola	Rochester, Minn.
Adams, Julius	Marquette, M. D., 1921	Rollingston, Minn.
Anderson, Carl M.	Marquette, M. D., 1911	Rochester, Minn.
Arnquist, Andrew Samuel	U. of Illinois, M. D., 1920	896 Payne Ave., St. Paul, Minn.
Baker, Clark Everett	Vanderbilt, M. D., 1917	Rochester, Minn.
Bayard, Walter D.	Northwestern, M. D., 1917	Fargo, N. D.
Bradley, Everett L.	George Washington, D. C., M. D., 1920	Rochester, Minn.
Bryan, Albert W.	U. of Iowa, M. D., 1920	Rochester, Minn.
Brock, Samuel	Johns Hopkins, M. D., 1916	Rochester, Minn.
Callahan, Harry Thomas	Marquette, M. D., 1920	Lewiston, Minn.
Cameron, Angus L.	Rush, M. D., 1916	U. of Minn., Minneapolis

Casmey, Lewis Nelson	N. W., M. D., 1921	Crookston, Minn.
Cathcart, Edward P.	U. of Michigan, M. D., 1921	Rochester, Minn.
Craig, Winchell McKendree	Johns Hopkins, M.D., 1919.	Rochester, Minn.
Ehrmann, Evelina Wilhelmina	Rush, M. D., 1921	Rochester, Minn.
Enochs, Robert Jones	Tulane, M. D., 1909	Alden, Minn.
Frazer, Emmett B.	U. of Alabama, M. D., 1918	Rochester, Minn.
Gardner, Victor Hugo	U. of Iowa, M. D., 1919	Dunnell, Minn.
Garlock, DeWitt Howard	Rush, M. D., 1921	Bemidji, Minn.
Hyer, Carl Aaron	Ohio Univ., M. D., 1920	Rochester, Minn.
Janjigian, Robert R.	Boston University, M. D., 1918	2719 Ulysses St. N. E., Minneapolis
Kenny, Herbert Francis	U. of Michigan, M. D., 1916	684 Summit Ave., St. Paul
Kerlanski, Samuel Z.	Northwestern M. D., 1921.	Bowlus, Minn.
Knauf, Arthur R.	Rush, M. D., 1916	Rochester, Minn.
Koons, Karl Monroe	Indiana U., M. D., 1917	Rochester, Minn.
Madison, Elizabeth	Hah., Chicago, M. D., 1906	308 N. J. Bldg., Duluth, Minn.
McEnaney, Jas. B.	Keokuk, M. D., 1878	Holland, Minn.
McGuire, Louis David	Creighton, M. D., 1917	Rochester, Minn.
Nye, Lillian Lydia	Johns Hopkins, M.D., 1921.	803 Lowry Bldg., St. Paul
Pardee, Katharine	Johns Hopkins, M.D., 1918.	Rochester, Minn.
Powell, Lester Davis	U. of Iowa, M. D., 1918	Rochester, Minn.
Pulford, DeLos S., Jr.	Johns Hopkins, M.D. 1917.	Rochester, Minn.
Proctor, Oscar S.	Northwestern, M. D., 1920.	Rochester, Minn.
Rice, Geo. Ernest	U. of Pennsylvania, M. D., 1918	Rochester, Minn.
Rockwell, Donald C.	Northwestern, M. D., 1920.	Rochester, Minn.
Senty, Elmer Geo.	Rush, M. D., 1916	Rochester, Minn.
Shipley, Harry M.	U. of Nebraska, M. D., 1919	Adams, Minn.
Snyder, John W.	U. of Michigan, M. D., 1906	Rochester, Minn.
Struthers, John Edmund	Medico-Chirurgical Col., Pennsylvania, M. D., 1915	Rochester, Minn.
Taylor, Richard V., Jr.	U. of Virginia, M. D., 1910	Rochester, Minn.
Wahle, George Henry	Washington U., St. Louis, Mo., M. D., 1919.	88 Spruce Place, Minneapolis
Wilhelm, Louis F. X.	St. Louis, U., M. D., 1920.	Rochester, Minn.
Wilkins, James Alex.	U. of Virginia, M.D., 1919.	Rochester, Minn.
Winter, Malcolm D.	U. of Iowa, M. D., 1917	Rochester, Minn.

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Burden, Verne Gerard	U. of Pennsylvania, M. D., 1919	Rochester, Minn.
Hoon, Merle Russell	U. of Pennsylvania, M. D., 1918	Rochester, Minn.
McFarland, Albert Rankin	U. of Pennsylvania, M. D., 1918	Rochester, Minn.
Meeker, William Raymond	Rush, M. D., 1920	Rochester, Minn.
Noonan, James Joseph	Rush, M. D., 1919	Rochester, Minn.
Scholl, Albert John, Jr.	Harvard, M. D., 1916	Rochester, Minn.
Sprunt, Wm. Hutchinson, Jr.	U. of Pennsylvania, M. D., 1918	Rochester, Minn.

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MITRAL STENOSIS: AN ANALYSIS OF THE PHYSICAL FINDINGS AND CLINICAL ASSOCIATIONS*

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DULUTH, MINNESOTA

INTRODUCTION

Some justification should be offered by an essayist who chooses a subject as broad as this, for any standard text or monograph is replete with an array of information that contains the essential facts and opinions, giving their application. However, an analysis of our more recent articles and monographs is not reassuring, because it is apparent that a judgment of cardiovascular efficiency cannot be arrived at by any set combination of findings or instrumentation. Nor do various teachers whose experience entitles them to an authoritative position agree on a common set of findings from which they deduce a common interpretation.** In other words, each keen observer relies on a set of circumstances and associations which enable him, from his experience, to arrive at a conclusion. This follows upon the rather chaotic state into which we have fallen relative to ways and means to judge the integrity of the myocardium; and it is now quite agreed that the ultimate fate of each individual valve lesion depends upon what happens to the heart muscle.

For meetings such as this, where men come together for an exchange of ideas, it seems justifiable to attempt an analysis of current medical literature and opinion, for the purpose of re-establishing diagnostic standards, and to introduce such first-hand information bearing upon current opinion as comes to hand through an analysis of our own cases.

THE IMPORTANCE OF MITRAL STENOSIS IN PRIMARY CARDIAC DISEASE

Primary nephritis, vascular disease (essential hypertension), and cardiac disease, as well as secondary chronic anemias, toxemias, and malignancy, terminate with signs of myocardial overstrain and exhaustion. It is far from true that from the prognostic and therapeutic point of view a determination of the organ primarily diseased is unnecessary. No physician can logically approach such a patient without endeavoring, where possible, to at least approximate this elemental differentiation. The symptoms overlap and the laboratory and instrumental data coincide, but the zest of accurate diagnosis is lost and absurd prognoses given, unless reasonable means are taken to find out, for example, whether the urine findings follow a failing heart or kidney. In the development of medicine, from period to period, certain signs have been accepted as basic and indicative of true structural disease in various organs. Here is where our standards begin to shift and leave us more or less disturbed: the finding of albumin in the urine is taken to mean in many conditions something very different from a nephritis. A hemoptysis may be due to something quite at variance with tuberculosis of the lungs. Confining our interests within the limits of one organ, we again find our "fixed standards" the object of much shifting and displacement. Systolic murmurs heard anywhere over the precordium are coming in for much questioning as to how frequently they point to true primary cardiac disease, particularly in children: no degree of systolic apical murmur can be taken as denoting an organic mitral leakage, at least where left ventricular hypertrophy cannot be demonstrated, *and should be questioned* where there is not a history of *acute articular rheumatism or similar infection.* It is probable that the tricuspid valve is always physiologically incompetent, and the mitral to only a lesser degree, and even that stability of the left auricular wall may have something to do with prevention of so-called "relative insufficiency" of the mitral. Many apical systolic murmurs in children are certainly meaningless; in people over 40, they may be sounds transmitted through the left ventricle from the aorta, and due to atheroma.* The so-called accidental or hemic or cardio-respiratory murmurs heard near the base, bring into the limelight the mass of conflicting opinion, out of which is merging this one definite thought: their consideration and importance must be weighed as only one finding, in connection with situations as found in the thyroid, the mediastinum, the elicitation of focal toxemias and general tissue and body fluid states. Murmurs are only auscultatory impressions; yet most of us who got our training in the last twenty-year period had most of our ideas of cardiac diagnosis handed to us via the stethoscope. In the study of all disease there are symptoms and findings that suggest things to us; there are others that cause us to make up our minds. It is trite to remark that auscultatory evidence of supposed cardiac disease has caused us all too often to make up our minds erroneously.

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*Presented at the Thirty-fourth Annual Meeting of the North Dakota State Medical Association, Fargo, N. D., May 26 and 27, 1921.

**Journ. of the A. M. A., Vol. 76, No. 18, p. 1270.

Therefore, I propose to discuss with you, rather intimately, the condition of mitral obstruction or stenosis; a disability where the auscultatory evidence is of paramount importance; where the signs, when properly elicited, are truly indicative of a disease process; "the most common valvular defect with which heart failure is associated" (Mackenzie[1]),—therefore a *primary cardiac condition;* an elemental basic lesion, having the widest influence on bodily efficiency and life expectancy. It kept many recruits out of the army, and, when uncovered, life insurance companies do not want the applicant under any condition. Yet the ordinary influence of life selection finds these patients in the most vital of positions: the wage earner, with a family to support, but, more often, the expectant mother, with one or more older children, for the condition occurs much oftener with women than men.

DEVELOPMENT AND CAUSATION

"The early signs of cardiac disease are hidden," because, paradoxically, it begins as something else. Classical signs of mitral obstruction cannot occur until scarring, more or less dense, has time to develop. Hence, like some of you, I am sure I have been greatly chagrined on a number of occasions to find a definite presystolic thrill and murmur in patients I had previously cared for some months or years past in whom the idea of an organic heart defect had not even seemed to merit consideration.

The mechanism whereby stenosis takes place is well enough understood. Few men need now be told the enormous influence of tonsillar infection and, to a lesser degree, of mouth and sinus infections in the development of acute and subacute rheumatic conditions, chorea, and endocardial distortion. In passing, as much as we may decry the modern tendency to wholesale tonsillectomy, we must not forget that the connection between tonsil infection and the above states, and the tendency to further recrudescence of the lesion, once present, with further insult and injury, are proved beyond cavil. Furthermore, it is not the indiscriminate removal of large, plump tonsils that promises and gives the best results, but, rather, the nice, clean, technical removal of tonsils buried, small scirrhous or otherwise, leaving a throat undisturbed as much as possible. This service, when given at the right time, certainly marks a great forward step in the way of preventive therapy, and we can look to the future to lessen the number of chronic endocardial conditions that now come to us an inheritance of the last three decades.

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*Curiously enough, the tyro is prone to diagnose aortic stenosis where there is no hint of insufficiency. True aortic stenosis is indeed rare, and the diagnosis rests particularly on type of sustained pulse; where present, the aortic wall is spared the grind of vigorous emptying from an enlarged ventricle, and atheroma is rare. Also, we get concentric instead of excentric left ventricular hypertrophy, and the customary type of enlargement is wanting.

St. Lawrence[2] published a very timely study on the records of ninety-four children, fifty of them with organic heart disease, in which the sexes were equally divided. Tonsilitis, chorea and rheumatic fever were the antecedent infections. His final conclusion is worth quoting: "Tonsillectomy complete—the most important measure at present available for the prevention of acute rheumatic fever and its associations."

Lambert,[3] in commenting on St. Lawrence's paper, interestingly pointed out that in thirteen years, 6,535 cases of acute rheumatic fever were admitted to the Bellevue Hospital—totals aggregating from 1 per cent to 2.5 per cent of all patients admitted. "Totally bad tonsils were found in 25 per cent of the cases, and 68 per cent had foul teeth." He does not give figures as to the total number having cardiac involvement. He does quote Church as stating that under ten years, 75 per cent of all children with rheumatic fever show cardiac involvement, the number decreasing as they grow older, until after forty only 12.5 per cent show cardiac involvement. He also shows that proper tonsillectomy, practised over a long enough period of time, has greatly lessened the incidence of acute rheumatic fever —hence, cardiac disease.

THE PHYSICAL STIGMA OF THE DISEASE

The mitral stenosis patient has long been recognized as having a peculiar facies: inclined to a stunted, dwarfed development; in women, particularly, inclined to a physique that under the best of conditions is far out of proportion to their ambitions and responsibilities. After pericardial inflammation, particularly with adhesions, we see the most grotesque efforts on the part of the greatly enlarging heart to keep up with its demands and bodily growth; these patients, if affected when young, remain dwarfs. We know now that in severe heart infections the process does not single out individual portions: we see the reason, therefore, for the curious stigmata that individualize the patient whose mitral obstruction occurred when young. The resiliency of youth, however, brings most of these patients over into the second and third decades before they meet up with signs of circulatory deficiency.

THE PRESENTING SYMPTOMS NOTEWORTHY IN OUR PATIENTS

Before discussing the essentials of diagnosis, I wish to first point out the end-results that we have commonly seen arising from mitral stenosis, and ask you to consider these variable, but reasonably constant, symptoms, with corresponding physical states working backward to the underlying physical conditions and the reasons for certain physical signs. I do this to bring into the foreground certain striking complexes that should arrest our attention and lead us to look further into the condition of the heart:

1. About $33\frac{1}{3}$ per cent of our patients with mitral stenosis came complaining of gastro-intestinal symptoms. I recall vividly a woman with a large liver (Riedel lobe type) that a good surgeon was on the point of exploring, on the basis of a possible gall-bladder disease. The passive congestion, so vividly shown in the liver, produces a great variety of signs of indigestion, due to an equal degree of passive congestion in the associated organs,—the spleen, the stomach, and the small bowel.

2. Hemoptysis: $9\frac{1}{3}$ per cent of our patients with mitral stenosis had distinct hemoptysis. Of all the conditions that this betokens other than pulmonary tuberculosis, mitral stenosis certainly stands first. When we further recall that a definite number, due to the mechanical enlargement of the left auricle, with resultant pressure, cause congestive states in the left apex, with or without râles, we have the diagnosis further confused. In addition, hoarseness is not uncommonly found, and is well discussed by Garland and White.[4] Here we have a triad of symptoms,—hoarseness, congestive signs at one apex, and hemorrhage,— upon which it is difficult to avoid making a diagnosis of a serious lung condition. To disentangle this, we must remember the well-known train of symptoms resulting from back pressure in the lungs and ultimate strain of the right heart. It has been thought that an antagonism exists between mitral stenosis and pulmonary tuberculosis; and that the unnatural congestion of the former tended to prevent the latter. Largely through the definitive data, easily elicited by the *x*-ray, together with careful sputum tests, this confusion is not only dispelled, but the rule is found untenable. We have found three definite and two questionable cases that had both pulmonary tuberculosis and mitral stenosis; while, therefore, unwilling to assume that the mitral stenotic patient cannot have pulmonary tuberculosis, we should rather recall that hemoptysis and persistent nosebleed particularly, may be constitutional signs of mitral stenosis.

3. Mitral stenosis asserts itself and begins to figure in mortality statistics during the child-bearing period of women. It does not require much speculation to make plain the disasters that arise through the added burden of this physiologic process. Only too often pregnancy puts such a test upon the competency of the heart that the patient in fair condition is plunged into one of complete incompetency. Opinion is still widely divided among the profession as to the best attitude to assume toward the mitral stenotic patient who becomes pregnant. Some recommend openly that pregnancy be terminated. In my experience, where this has been done the immediate shock, as in many other conditions where similar advice has been given, has proved worse than if the patient had been safeguarded and the pregnancy not interrupted. Unfortunately, I have no exact figures on the number of pregnancies encountered that seemed to upset the competency of the patient, because many times these patients were seen in consultation, and personal records have not been kept. The whole problem is a serious one, and closely tied up with the broader issues involved in safeguarding mitral stenosis patients against the many vicissitudes that arise in modern life, and hinges on the need of safeguarding the lives of those involved. In other words, the conditions arising in pregnancy are only an exaggeration of those that confront the patient with all the uncertainties that one must ordinarily meet.*

4. *Cough, Dyspnea and Bronchitis.*—Seventy-two per cent of our cases came complaining primarily of cough and dyspnea. It is striking how apparently intact the hearts of these patients may appear; the snapping first tone or the presystolic thrill and murmur, unless carefully searched for in varying positions, before and after exercise, might easily be overlooked. They might readily be classed as having a deep bronchitis, sometimes unilateral, but often bilateral, and represent a disturbed myocardial efficiency. We should never forget that one of the most convincing signs of failing heart muscle is the transitory or recurring edema (Riesman[5]), with a few crackling râles, heard at the base of the lungs, when the patient first sits up after repose. Make the patient take a few deep breaths, and listen intently at the bases of both lungs posteriorly. This early tendency to dependent edema points the reason for the severe types of congestion prolonging bronchial infection. Many of these patients seem to do well until this tendency develops, and it often proves their undoing. Whether they are actually more susceptible to infection or not I am sure I do not know. However, they should all be cautioned and told that the ordinary coryza or grippe or cold, that to most people proves only a transitory inconvenience, to them may become an overwhelming disaster. They have a brassy, spasmodic, insistent, non-productive cough, accompanied by much general anxiety, dyspnea, and unmitigated discomfort difficult to control.

5. *Infarction and Emboli.*—To those who have had the opportunity of a considerable post-mortem experience, the evidence of old and recent infarction in various organs, particularly the spleen, kidneys, and lungs, has been most illuminating. Pulmonary congestion, retardation of blood flow, even without roughening or disease of the endocardium, incline to the formation of thrombi. I am indebted to Dr. Henry Ulrich,* who in a clinical demonstration pointed out that the lively stepping up of the circulation with large doses of digitalis where auricular fibrillation exists, is apt to whirl certain of these clots into the circulation. I know I have observed such an accident:

> A woman aged 50, seen first in definite auricular fibrillation, with cough and dyspnea and some chest pains—much relieved after a slowing of the pulse and the maintenance of an optimum digitalis daily dosage of twenty minims of the tincture. Later on she abandoned the digitalis and rapidly returned again to the very rapid and total irregularity. She again returned on her own volition to the rather large, early dosage she had previously taken, and I was called a day or two later on account of severe, sticking pains, supposedly pleuritic in origin, on the left side. She was raising bloody sputum and had a hacking, insistent cough. Her temperature was normal. A distinct, localized pleuritic rub could be heard over a small area in the left side of the chest; there was no change on percussion. The whole affair cleared up promptly in two days. Tragically enough, this same patient died suddenly two months later in sudden syncope, with striking evidence of femoral embolus, with agonizing pain in the right leg. (Autopsy was not permitted.)

There is theoretical ground, and experience conforms with it, that in acute or recurring vegetative formations on the valve cusps, the systemic circulation conveys the emboli rather than the pulmonary.

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*The "Association for Prevention and Relief of Heart Disease," 325 E. 57th St., New York City, will send popular literature on request, and is a striking indication of the times to prevent heart disease, if possible, and better adjust the patient to his enviroment if not.

*The Minneapolis Clinic Week.—1919.

†I have also seen a similar, more severe accident, in a case of myocardial insufficiency after heavy digitalis dosage.

Spleen infarction, I have surmised a number of times, and abscess followed one, with satisfactory drainage and recovery. The patient lived and three years later suffered a thrombosis of one femoral, necessitating amputation of the leg. He lived thereafter nearly eight years, only to die ignominiously of gradual cardiac exhaustion in the usual manner.

I have seen disastrous cerebral emboli twice, once after operation for exploration of a supposed liver abscess and in a definite recurring endocarditis.

Kidney emboli* may result in a perfectly huge amount of albumin transiently, with severe lumbar pain. This association of copious albumin with sudden sharp pain, sometimes simulating stone or colic should always incline us to remember infarction.

6. *Chest Pain.*—This was the most striking symptom alleged by 20 per cent of our patients. An analysis of this intricate and much mooted symptom would lead us too far afield. Regardless, however, of the mechanism of its production, we may accept the statement that these hearts register distress when overcrowded. Speaking broadly, the older the patient lives to be, regardless of the source of heart pain, the more definite it becomes. Every heart has a limit of its endurance and capacity; in the young and elastic, this limit is not easily reached; breathlessness, exhaustion, etc., come first. We should simply remember that all chest pain should not be brushed aside as indicating a neuralgia or even a regional evidence of focal infection. In my experience patients with mitral stenosis have stood out apart from the others in having a singular limitation of capacity while still retaining fair compensation; a little hurry against the wind or rapid ascent of stairs brings them up with a sharp reminder, often accompanied with vertigo, even tinnitus, and syncope of varying grades.

The table herewith presented shows a summary of the dominant symptoms presented by our series of 75 cases studied.† Especially noteworthy are the associated lesions, but there still remains a 53 per cent in whom mitral stenosis alone was indexed.* In passing on this diagnosis it should be emphasized that lack of enlargement of the left ventricle must be insisted upon before we can venture the diagnosis of this islolated lesion. The typical, pure mitral stenotic heart is relatively small, the enlargement of the left auricle and right ventricle being best interpreted through the now widely used fluoroscope. Where we know stenosis exists it is fair to assume that a systolic murmur, if accompanied with left ventricular hypertrophy, means insufficiency. Speaking generally, mitral insufficiency is a relatively innocuous disease if it is the only lesion present.

The 43 per cent showing weakness and exhaustion, is in keeping with the type of individuals affected.

Sex:
Female—50.
Male—25.
Age:
Oldest—65, 52, 51.
Youngest—13.
Average—33.
Etiology:

		Per Cent
Rheumatic fever	28	37
Tonsillitis	18	24
Chorea	9	12
Scarlet fever	3	4
Pneumonia		
Typhoid		
G.-C.		
"Grippe"		
No history, all total	23	31

Presenting symptoms:

		Per Cent
Gastro-intestinal	25	33⅓
Dyspnea	54	72
Cough	29	39
Weakness and exhaustion	32	43
Hemoptysis	7	9⅓
Precordial pain	15	20

Associated lesions:

M. S. and A. I.	3	4
M. S. and M. I.	32	43
Pulmonary T. B. C.		
Definite	3	4
Indefinite	2	3

MURMURS AND HEART TONES—AURICULAR FIBRILLATION

The older teachings and texts were dogmatic enough relative to the basis for diagnosis of mitral obstruction:

1. Presystolic thrills.
2. Presystolic murmurs.
3. Accentuation of second pulmonic tone.

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*Such emboli are a common source of kidney abscess and, later, of perinephritic abscess or pyelitis, after breaking through with the sequelæ well known to surgeons.

†From the records of the Duluth Clinic.

*It must be admitted that no degree of stenosis occurs without some insufficiency, and vice versa. But it cannot be insisted upon too strongly that **anatomical** grades of involvement are quite compatible with unchanged physiology, and the "Normal" mitral may be "Insufficient."

It is difficult for us now to overestimate the importance of auricular fibrillation—the most important and frequent disturbance of cardiac rhythm. Voluminous as is the article on mitral obstruction in the "System of Medicine" (Allbutt & Rollston[6]), nothing was said about this physiologic disturbance, although the full importance of the left auricle was considered. To-day most writers hold, with Mackenzie,[1] that "in well compensated hearts a crescendo presystolic murmur, and in auricular fibrillation a diminuendo apical murmur, diastolic in time, mean mitral stenosis." The change in the criteria for diagnosis has gradually come as a fuller knowledge of auricular fibrillation has become disseminated.

White[4] has recently given extreme emphasis to "The Telltale Middiastolic Murmur," left after the strong, firm, presystolic murmur has disappeared, on the onset of incoördinate auricular action in fibrillation. I mention this because no recent reference to mitral disease fails to fully consider the variations in heart tones, sounds, and murmurs, dependent upon the rate and the extent and degree of auricle irritability, and the kind of impulses that are being communicated through the bundle to the ventricles. In fact, "Auricular fibrillation under 40, almost always means rheumatic heart disease, with mitral involvement, usually stenosis" (White.[4]) It is natural, therefore, that we should reach out for some simple method of always properly indicating whether auricular fibrillation is present or not, since this gives most valuable indirect evidence as to the mitral orfice.

A study of the so-called "pulse deficit," while certainly suggestive, helpful, and valuable, in rapidly acting hearts, does not give evidence where the rate is slow; pulse tracings and electrocardiographic data are not readily available. I know of no better way to acquire judgment relative to the interpretation of auricular fibrillation than to remember its prime characteristic of total irregularity, and most of all, to carefuly familiarize one's self with it in a known case. As a rule it is unmistakable.

Functional apical presystolic and diastolic murmurs may exist. In that curious series of late nephritis with hypertension, which present at post-mortem an actual obstructing lesion at the mitral, there is some reason for differential confusion. Some writers mention a suggestive presystolic thrill and murmur seen in vigorously acting hearts in the hypertensive individual,—a relative stenosis of the mitral, due to increased left ventricular capacity,—in a word, quite similar to a Flint murmur. However, disregarding these rarities, the ear should be most carefully trained to detect and interpret the more important diastolic and presystolic murmurs heard at or near the apex (limitedly), and those heard to the left of the sternum, because these murmurs unerringly point to grave organic heart disease,—mitral obstruction and aortic insufficiency. It is apparent that these soft diastolic murmurs are often overlooked. The patient should be ausculted in various positions (lying down and standing up and after exercise). The army regime was a good one, and we could all well follow it. These soft diastolic murmurs point more definitely to cardiac disaster than do the sharp, grating, presystolic murmurs* sharply terminated by the first tone of the heart, accompanied by a snapping second pulmonic tone, really indicative of compensation and good muscle tone. Separation of either the first or the second heart tone into two or more components, is strikingly suggestive of mitral disease. Whether these split sounds are heard best at the base of the heart or at the apex, furnishes us interesting data, either as to the coördinate closure of the pulmonary and aortic valves, or as to whether the ventricles are beating in unison or not. We should attempt to train our ear to detect the element in the first tone of the heart that is muscular, and the element that is due to flapping and tension on the valves and their supporting structures.

As a direct and helpful method of showing the variability of the murmurs involved and the factors to be considered, as well as to point briefly to the all important effect of digitalis in auricular fibrillation, I will recite, briefly, the sequence of eventes in a patient with double mitral disease carefully observed:

Mrs. H. A. G., aged 39 (No. 19140). Rheumatic fever when 16. First signs of cardiac failure after second baby eight years ago—very rapid heart in fibrillation, extreme exhaustion, much dyspnea (particularly on lying down), chest pains on slight exertion, much gas and bloating (attributed to her food).

Patient anxious, alert, pallid, thin, lips slightly cyanotic. Tachypnea; throbbing of the vessels of the neck; wide, diffuse apex beat; suggestion of a presystolic thrill. Liver edge markedly rounded and tender. Slight edema of the ankles.

Fluoroscope showed definite widening, both to the right and to the left, and distinct enlargement of the *left auricular shadow.*

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*White[4] seems to doubt whether this complex is common in mitral stenosis. Lewis A. Conner confirms my own experience, in his discussion of White's statement, by holding to the older teaching in this regard.

Blood pressures 80 diastolic; and 130 systolic. Hemoglobin, 80 per cent; R. B. C., 4,900,000; W. B. C., 10,000. Urine showed albumin; *no blood* and no casts.

Placed under observation, the patient was given capsules of powdered digitalis leaves (Upsher Smith) (8 capsules for first day). The pulse-rate dropped rapidly; coincident with more even pulse beats at the radials, the signs of passive congestion abated; rapid clearing up of the albumin in the urine, etc.

When in rapid fibrillation the presystolic murmur was lost, the ever-present loud systolic murmur might easily give the impression as determining the basic lesion. However, as soon as the heart rate dropped, the presystolic murmur, commensurate with the presystolic thrill, became very apparent, especially under slight exertion. The patient while much better when digitalized, was very easily nauseated (early toxic sign). After two days of nausea a mid-diastolic murmur could easily be heard at the apex. Twenty-four hours later, in addition, a very distinct diastolic murmur, a little earlier in diastole, could be heard just to the left of the sternum, in the fourth interspace. This appeared again, for short periods only, and disappeared. There was no splitting of the second tone at the base, but distinct splitting of the first tone at the apex, no doubt indicative of asynchronous ventricular beating.

The diastolic murmur[7] I have described as heard at the fourth interspace, just to the left of the sternum, is the so called Graham-Steele* murmur. Its variability and evanescence are typical. It is apparently due to a relative insufficiency at the pulmonary ostium. Another explanation is relative stenosis of the tricuspid in the presence of enlargement or dilatation of the right ventricle.† This murmur might have indicated aortic insufficiency and mitral stenotic elements ascribable to a Flint, but this is untenable, in view of the diastolic pressure found and the general appearance of the patient, the history, the character of pulse, etc.

I would not enter into this analysis were it not apparent that for the proper judgment of these cardiac lesions and an interpretation of muscle integrity we must use and weigh all the evidence available and fit it together in a logical manner. In no complex does a jumble of murmurs occur as in chronic adhesive pericarditis. Here a close history of the patient, with keen analysis of the fluoroscopic silhouette, the indirect evidence of underdevelopment, the tendency to unusual liver enlargement, and ascites, will help to explain otherwise incongruous diastolic murmurs. The Flint murmur is well understood and brings into focus the interesting question of diagnosis of multiple valve lesions. The unusual pulse pressure, the lowering diastolic, and extreme left ventricular hypertrophy enable classification.

The treatment of the patient suffering with myocardial insufficiency is certainly not all a matter of rest and digitalis. Specific and miraculous as is the treatment of auricular fibrillation with digitalis, it can certainly be stated that it is not the "end all" in the treatment of mitral stenosis. It is not my intent to cover this all important matter of treatment. This particular phase is being presented to you at this very session by a well-known authority on the use of digitalis, Dr. S. M. White, of the University of Minnesota. I do wish, however, to express a few conclusions relative to prognosis:

PROGNOSIS

I have a number of patients who have a clear mitral stenosis whom I have had under observation now for more than ten years and who seem to be quite as well as they were in the beginning. It is coming to be increasingly apparent that the stability of the circulation in these cases is dependent upon the integrity of the left auricle. So many mitral stenosis cases ultimately develop auricular fibrillation that the mechanical disturbance of the auricle must be an important factor. Willius' report from the Mayo Clinic[8] deserves much consideration. With an observation extending over a period of four and one-half years, Willius found that 47 per cent of the cases of mitral stenosis, associated with auricular fibrillation, had died cardiac deaths, whereas in the controlled series of mitral stenosis uncomplicated by auricular fibrillation, the cardiac death-rate was 22 per cent for the same period of observation.

Rogers and Hunter[9] writing from the actuary point of view of life insurance, give a rather gloomy outlook, particularly on those individuals with organic heart disease and a rheumatic history. They show, from the records of the New York Life Insurance Company, that organic heart disease in individuals with rheumatic histories causes thirty times more deaths than occurred in the corresponding group with standard lives. Of course they do not insure knowingly any case of mitral stenosis. In their statistics on mitral regurgitation they speak of

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*Graham-Steele described this first in 1881—it has required many years to bring the term into the general literature.

†Emphasized as a post-mortem observation of Thayer's in cases with this murmur.

7,025 cases without cardiac hypertrophy, and 1,282 with hypertrophy. Insurance of these modified risks began in 1896. Investigations in 1918 showed that the ratio of actual deaths to the ordinary expectancy in the former was 404 to 224, or 181 per cent; where hypertrophy was added the percentage was raised to 225; where in addition, there was a definite history of inflammatory rheumatism the figure rose to 300 per cent; where hypertrophy was more marked to 455 per cent. Certainly for those cases without cardiac hypertrophy, the systolic murmurs present must have at least been difficult of separation (with their numerous examiners), from another series of 2,622 cases, with an average age of 29, that were classified as having "functional heart murmurs." For this latter group the death ratio to expected death in those under 35 was as 54 is to 56, or 96 per cent; over 35, the ratio was as 34 is to 21, or 162 per cent.

All these figures, of course, have a bearing only indirectly on the question of mitral stenosis, but it must be remembered that wherever a true insufficiency of rheumatic origin exists, even though stenosis of the mitral does not coëxist, the damaging features involving the myocardium are present, as well as the possibility of recurrence of the lesion that established the disease in the beginning. In any case a physiologic stenosis of the mitral makes the prognosis very much worse.

CONCLUSIONS

1. Mitral stenosis or obstruction is the most important primary valvular disorder.

2. In those under 40 it is the most common lesion the basis for auricular fibrillation.

3. The physical findings are characteristic, and the murmurs, when present, unlike so many systolic murmurs, really indicate pathology and disease.

4. The disease picture occasioned by the fully developed lesion is something far more than a heart condition; disturbances of various organs may be due to it, and it should interest the general practitioner and every specialist.

5. It is profoundly influenced by auricular fibrillation, and when the heart is beating rapidly from that cause, the classical relationship of thrills and murmurs is disturbed.

6. Then comes into prominence the great importance of the other diastolic murmurs.

7. An interpretation of heart capacity is extremely difficult; as in other cardiac deficiencies, a piecing together of all the evidence available is necessary in providing an accurate prognosis.

8. The lesion is frequently combined, but occurs often enough singly to challenge our undivided interest; the treatment of auricular fibrillation is the proper exhibition of digitalis; not so the treatment of mitral stenosis.

9. For long periods, even when present, no medical therapy may be needed at all; but nowhere is constructive guidance more necessary, in order that the unfortunate possessor of this lesion may foresee many obstacles and avoid them.

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DISCUSSION

Dr. W. C. Fawcett (Starkweather): After listening to this fine paper on mitral stenosis I feel my inability to adequately discuss it. Doctor Tuohy has covered the subject from a to z. Very often we who are in general practice see such a case, and when the patient comes in we listen to the heart sounds, tell him that he will probably be all right, give him a prescription and a little advice on rest and diet, and ask him to call again in a few days; whereas that patient is suffering from the most common of heart lesions, a mitral stenosis, probably accompanied by mitral regurgitation. That patient needs our best judgment and soundest advice immediately, and not two or three or four years hence, when compensation may be nil.

I was well pleased also with what the essayist said about focal infection, especially that of the tonsils. It is a well-known fact that the history of the great majority of these heart lesions dates back to the time when the patients were little children in school; they give a history of sore throat followed by inflammatory rheumatism. We would almost be safe in going farther than the essayist has gone and deal with diseased tonsils, for we rule the children that go to school; the state law has prescribed that the child must go to school, and we should rule that the child must have the diseased tonsils removed.

The essayist referred to hemoptysis, which is a very common complication. The patient is very apt to be led to believe that because of this complication he has tuberculosis. While it is true that many cases with hemoptysis are tuberculous, a large percentage are not. Next to tuberculosis the most common disease complicated by hemoptysis is mitral stenosis. I recall a patient who came insisting that she had tuberculosis, and I assured her that this was not the case, however she went away to the mountains and finally came back convinced that she had a heart lesion, from which she died in six months.

Dr. Tuohy also spoke of mitral stenosis in women of the child-bearing age. These cases do not experience trouble with the first or second pregnancies, but usually with the third or fourth. They come in the early months of pregnancy complaining of shortness of breath and gastric symptoms, and the question arises as to whether we should terminate the pregnancy or allow the patient to go to full term. Personally, I am always in favor of the former course except in the very extreme cases. Sometimes women with a bad mitral lesion will go through a pregnancy in fine shape.

In closing I wish to mention a point about which not much has been said. Dr. White in his paper presented yesterday discussed "Treatment with Digitalis." But the treatment of mitral stenosis with digitalis is not always altogether successful. We can treat these patients with this, that, or the other drug, or we can digitalize them, but one of the most important things is absolute, forced rest. It has often happened that, instead of these patients going on from bad to worse, two or three weeks of absolute rest in bed has worked wonders for them. By rest I mean rest of the *mind, body,* and especially the *digestive system.* These patients should have nothing to worry about, especially business or the cares of the home. The body should be at absolute rest in bed. The stomach should have just as little food as necessary and that of the easily digested kind. I would, therefore, impress on the mind of every patient in big letters the word *rest.*

A COMPARISON OF THE MEDICAL ETHICS OF FIFTY YEARS AGO AND THOSE OF TO-DAY*

Some Offenses Which Transgress the Principles of Right Doing But Are Not Emphasized in Our Code

By A. W. Abbott, M. D., F. A. C. S.
MINNEAPOLIS

I want to congratulate the members of the Hennepin County Medical Society most heartily on its present freedom from the petty jealousies, not to say personal hatreds, of forty years ago.

However fascinating, I shall pass by the deliberate stealing of patients, the lying in wait, by a hostile confrere, for an unwary brother to make a mistake in practice, his gentle but guarded hint to the patient that here was a good cause of action, not only getting the victim mulcted in a goodly sum, but having the pleasure of adding a part of that sum to his own bank account, so as to be financially ready for the come-back suit, which was likely to be instituted as soon as sufficient evidence could be raked out of his own vulnerable practice.

The risks of a consultation when, after praising the diagnosis and treatment (the attending doctor having departed with his soul fed up with the innocent satisfaction of duty well done), the consultant would return by the back door, (if the moon was not too bright), declare the whole thing off, admitting that he agreed with the doctor only because he was young, but he did not want to hurt his feelings.

Nor will I tire you with the names of magazines and newspapers which published full-page illustrations of those wingless angels of mercy, clad in white, harpless but playing an airy duet with forceps and scalpel and turning the eyes from the operating-table just far enough to enable the camera to catch a recognizable profile.

I shall not attempt to describe the lively interest and hilarious enthusiasm that greeted the personal criticism of the writers of some very excellent papers, little time and no energy being left for the discussion of the paper itself.

I may just speak of a lovable, joy-shedding soul, now gone to his rest, who told me confidentially that he had a catlin a yard long, poisoned with wurari, that he intended when convenient to run through the heart of one of my best friends. I paid little attention to this, realizing that it merely indicated a slight dislike and was not a very startling announcement for these days. We will glance only with shame at that degrading, soul-and-body jeopardizing practice of buying patients by the fee-splitting route. It was only occasionally practiced in those days, flourished for a few years, and is now, thank God, getting the condemnation that it deserves.

These were sorry times, but the profession is reaching a higher and more honorable plane. We must admit that the medical profession was, ethically, way down at that time, but, unlike Caesar's German Elks, is getting on its feet again. Those of you who are familiar with the translations of Caesar's Commentaries will remember that he speaks of these beasts as having no joints or ligaments in their legs, so that, if once down, they could never get up. The medical profession has, luckily, joints and ligaments and always has and always will rise when temporarily fallen. These falls by the way have always been brought about by misunderstandings, by its own careless stumbling, or by a forgetting of the precepts of the fathers.

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*Presented before the Hennepin County Medical Society, Minneapolis, November 7, 1921.

We can turn from these gruesome memories to less distasteful things, which brings me to the real subject of the paper, which is, "Some Offenses Which Transgress the Principles of Right-Doing, but Which Are Not Emphasized in Our Code." They bear about the same relation to the gross sins mentioned above that white lies bear to a pure-bred offspring of the Father of lies.

1st. There are two kinds of doctors. One is always on time, the other is always late to an appointment. A calls B to a consultation. B drops in, unconcernedly, a half hour late. He and his like have acquired a slovenly habit, as the dictionary has "acquired by repetition." A has lost a half hour. C, who had an appointment with A, has also lost time and is behind with D, and so on. It is a bad habit, inexcusable and annoying.

2d. There are various, so-called "cults" abroad in the land, some with a two-months diploma and some way above the need of a diploma. We can see their distorted limbs through their filmy skirts, but the laity do not. If we fight them, either as individuals or as a profession, they wax and grow fat. Let them alone and intensify our own knowledge and efficiency until the internist can say, "Here is one single disease that I can certainly and always cure," and until the surgeon can heal a diseased organ without removing it to the specimen dish, then the laity will learn that "the faith that can move mountains" can't even budge a single cancer cell, that "the laying on of hands" at $500 per day upon the hopelessly blind and paralyzed is blasphemous cruelty, and that the wandering hand layer and bogus exponent of divine compassion always retains the cash, but never returns to receive the blessing of those he has healed, that a twist of the seventh cervical vertebra will not remove gallstones or cure pneumonia, and that the assumed semidislocation of certain bones, as the cause of all diseases, is no more to be compared with a pathology founded on exact observation than the stiff awkwardness of a skeleton with the smooth working of bone, muscle, and ligament in an athlete. We have had a plenty of experience. We quarreled with a certain harmless cult for years, while its worshippers fattened on the grueling. We finally let them alone; the thorns of the martyr's crown gradually wilted and dropped off until the rim of that emblem of persecution shines to-day as smooth as that of a discarded derby. The lesson is, Work steadily that our own building may be beautiful and strong and leave to the wind and rain of disappointment and unrelieved misery these shacks of straw.

3d. It is rather a growing custom for medical men to take out patents for surgical instruments and new medical remedies and processes. This is contrary to the spirit of our code. "Let the whole world have the benefit of your discoveries" was the edict of the fathers. It is a question of life and health more than of dollars. For the sake of a little in royalties, do not withhold hope, life, and comfort from the millions outside. Besides, if we may use a less dignified argument, there is seldom any adequate return for the time and money spent, in obtaining this exclusive right.

The writing of prescriptions for intoxicating liquors for the fee or because the person is a good friend is not only illegal but dishonest, forfeits respect even from the recipient, and each time leaves the doctor one notch lower in self-respect.

Finally, let me resurrect that ancient and mossy subject, "expert testimony."

It happens that only last week we had an illustration of the very point that I wish to make. Nine honest men, all members of this Society, so far as I know, and men that one could trust under all circumstances, testified in a case of injured back, five for the plaintiff and four for the defendant the witnesses being about equal numerically, one side practically offsetting the other, the back remaining in statu quo. This leads, in similar cases in the minds of the jury and public, to an unfortunate disrespect for the expert and raises the question whether any of them are experts or they would not be so evenly divided. As the facetious reporter of this case has it, "and four other physicians just as expert in the matters upon which they specialized were called by the defense." And worse than all is an absolutely unjust suspicion on the part of a few that in some cases the fee influences the testimony. Frankly, does the expert himself always have the same regard for the integrity of his opponent that he did before the trial or that he would have had if an opportunity for an interchange of opinion had been given prior to the testimony?

What are the real conditions that confront the expert? He is called upon at his office by an attorney, we will say, of the plaintiff. He is given an outline of the case from the plaintiff's viewpoint. He is asked if he can testify that a certain injury might result in a paralysis of the right leg. He says he can. So far the expert is honest. If he is wise he takes his fee in advance or knows that it is secure. He gets into court and is asked the same question and promptly answers yes. The attorney blandly asks, "Doctor, in this case the paralysis is without doubt due to this injury, is it not?" Just before this question is asked, the doctor has heard some testimony for the defendant which casts a doubt on the nature of the hurt. He wants to do right, he feels in his pocket what is left of his fee, he reluctantly answers "Yes," perhaps a little modified. The human heart and mind are subject to stresses, as the engineers say, and he has unconsciously been prejudiced in favor of the plaintiff; moreover, the insistence of the attorney has not given him time to think over the evidence deliberately. The benefit of the doubt goes to the plaintiff, and the expert on the other side, influenced in the same way, promptly gives an exactly contrary opinion. The jury is inclined to believe the expert who has used the simplest language, the lawyers resume their wrangle, and his honor genially smiles. Justice has miscarried, and both doctors have assisted at the abortion. The system, we all agree, is absolutely wrong. The medical man is led into doing a dishonest thing, though trying to be honest. He is wrong, and a wrong is never right or ethical. But you ask, What can you do about it? I think there is a remedy. Let every member of the profession backed by his Society say "No." "If you will allow us to be selected without prejudice to either party, and to examine the case by ourselves after listening to the evidence, we will agree as well as doctors can, and give you an unbiased opinion." But you say, How can this be done? The law does not provide a way, the lawyers do not want it that way, and the doctor does not know where to look for his fee. My answer is, Trust in God for your fee, but do what is right. The law cannot and will not compel a man to give dishonest or prejudiced expert testimony. How it is to be done is not our business. The trouble is right here. We have not had the manhood to stand for what is honest. Instead we have been trying to help the reluctant lawyer to find a way for us to tell the truth. Let the courts, whose business it is, find a way, and they will find it if they have to, difficult as it may be. Do right, and go out of court, with your head up, a dignified, respected, and self-respecting member of the noblest of professions.

THE PREVENTION OF ACIDOSIS IN THE TREATMENT OF DIABETES*

By Michael Higgins Ebert, M. D.
WEBSTER, SOUTH DAKOTA

It is conservatively estimated that more than 0.5 per cent of the total population of America is diabetic. While race and heredity are modifying factors, the distribution of these patients is sufficiently uniform so that every practitioner must constantly face the problem of the treatment of this disease. Every specialist must be on his guard to avoid the pitfalls which await the unwary who approach the special treatment of these unfortunates without adqeuate preparation.

Right here it is necessary to state that a routine examination of a specimen of urine passed in the office is totally insufficient to detect the borderline cases. Every well-taken history will elicit facts in regard to the patient's appetite, thirst, and frequency and quantity of urination. If the slightest suspicion is aroused the patient should be put on a full diet and several twenty-four hour specimens collected and examined. Naturally, in obscure cases a blood-sugar and a glucose-tolerance analysis are indicated.

Having established the pertinency of the general subject of diabetes, we pass next to the consideration of the special subject of this paper, *Acidosis*.

The title *Acidosis* implies to the casual reader that the blood and body fluids may readily become acid in reaction. This is the very farthest from the truth. In health their reaction is slightly alkaline and only a trifling variation toward acidity would result in death.

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"Acid" implies an excess of free H ions over free OH ions in a solution. "Neutral" implies that they are exactly equal. We express it this way: Distilled water has a pH7 which means that 10^7 liters (10,000,000 liters) of distilled water will contain exactly one gram of free hydrogen ions. Let us examine a solution very slightly acid.

In this less liters will contain one gram of free hydrogen ions. The pH is less than 7, i. e., pH6. In other words, only 10^6, or 1,000,000, liters are now required to give one gram of free hydrogen.

Then consider an alkaline solution. Naturally, this has more OH ions and fewer H ions, therefore more liters will be necessary to give one gram of free hydrogen. Its pH is more than 7, i. e., pH8, or 10^8 liters (100,000,000 liters) are required to give one gram of free H.

As I have said, the reaction of blood and body fluids is slightly alkaline under ordinary circumstances, the pH is 7.5, i. e., $10^{7.5}$ liters will be required to give one gram of free H ions.

The blood, however, is not like a simple solution of a very greatly diluted alkali. Considerable quantity of acid or alkali can be put into it without changing its reaction. It is "amphoteric." This property is due to the "buffer salts."

In health the normal katabolism of fats, carbohydrates, and proteins produces constantly a supply of CO_2 or carbonic acid gas which unites with H_2O to form H_2CO_3, a weak acid. The principal buffer salt is Na_2CO_3.

$Na_2CO_3+H_2CO_3$ equals 2 Na HCO_3

The pH is still 7.5, slightly alkaline. The 2 mol. Na HCO_3 are carried by the circulation to the lungs, where they are separated by only a thin membrane from an atmosphere low in CO_2. Under these circumstances the CO_2 is volatile and escapes leaving

2 $NaHCO_3$, which breaks up into $Na_2CO_3+CO_2+H_2O$.

The Na is not exhausted and returns to complete another and another cycle. K_2HPO_4 and the alkaline proteins act in a similar manner.

During exercise the CO_2 produced is not immediately neutralized by the "buffer salts," and a very slight change toward acidity of the blood results. This causes an immediate stimulation of the respiratory center in the brain and hyperpnoia with the removal of the excess CO_2 by increased pulmonary ventilation. This is the mechanism in health.

Let us next consider the introduction of a non-volatile acid into the blood-stream. Suppose we inject slowly a dilute solution of HCl.

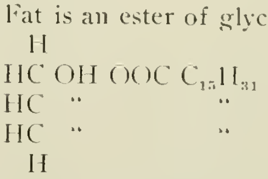
$Na_2CO_3+2\ HCl = 2\ NaCl + CO_2 + H_2O$.

The CO_2 is a free acid again and must be neutralized by more buffer salts. Na used in this reaction is lost to the organism, for it is excreted by the kidneys or the skin as NaCl. Manifestly, in a short time the circulating supply of buffer salts that is, sodium or potassium is exhausted. The latent supply is depleted. The body makes a last valiant effort to maintain neutrality by diverting the NH_2 wastes of protein metabolism from their ordinary course of excretion as urea $CO(NH_2)^2$ to combine with free acid and form NH_4Cl. Thus the ammonia content of the urine becomes abnormally high. But, sooner or later, the "alkali reserve" is exhausted, the CO_2 is not excreted, the tension of CO_2 in the alveolar air becomes abnormally low. The blood and body fluids change from faintly alkaline to an acid reaction, and with this change we have the onset of coma.

This experiment teaches us the tremendous importance of the alkali reserve of the blood. We can now define "acidosis," not as an acid condition of the blood and body fluids, but as an interference with the normal alkali reserve. It is only when this reserve is exhausted that we have a change in reaction of the blood. That change precipitates coma.

What is the source of non-volatile acids which might produce an analagous situation in the body?

Fat is an ester of glycerin and fatty acids.



$$\begin{array}{l}\ \ H \\ HC\ OH\ OOC\ C_{15}H_{31} \\ HC\ \ \text{"}\qquad\qquad \text{"} \\ HC\ \ \text{"}\qquad\qquad \text{"} \\ \ \ H\end{array}$$

When 210 grams of fat are oxidized, 72 grams of B- oxybutyric acid are produced CH_3CHOH-CH_2COOH.

In normal metabolism when plenty carbohydrate is being burned, this is further oxidized to diacetic acid $CH_3CO\ CH_2COOH$ and acetone CH_3COCH_3 and finally to CO_2 and H_2O. A glance at the formula shows the low oxygen content of the fatty acids. A large oxygen supply is required to burn them completely. When carbohydrates are not burned simultaneously the combustion is incomplete. They "smoke," so to speak, and B-oxybutyric acid, diacetic acid and acetone accumulate in the blood and fluids.

B-oxybutyric and diacetic acids are stronger that the carbonic acid and displace it from combination with the alkali reserve. They are non-volatile acids like HCl and consequently fix base, and when they are excreted remove with them a portion of the alkali reserve. This is at first compensated for by hyperpnoia. Clinically this condition is marked—

1. By the appearance of acetone bodies in the urine, i. e., *acetonuria.*
2. By increased NH_4 out-put in the urine.
3. By decreased CO_2 tension in the alveolar air.
4. By gradually increasing depletion of alkali reserve of the blood. This may be measured by Marriott's method and is the best actual measure of the depth of acidosis.
5. When the alkali reserve is exhausted and the blood actually more acid, this condition is characterized by the onset of coma.

Another but less important source of acetone bodies is the incomplete combustion of protein molecules.

If any person is put on a carbohydrate-free diet, after three days acetone bodies will appear in the urine. If a person is starved for any reason, the same condition occurs on the second or third day and lasts throughout the starvation period.

The acidosis of diabetes differs only in intensity from these and is produced by the same mechanism, i. e., disturbance of the ratio between the oxidation of carbohydrate and fat, except that in diabetes the carbohydrate is present in the blood, but through some disturbance in metabolism it cannot be utilized and burned in any quantity. Similar disturbances of carbohydrate-fat oxidation ratio occur in cachexia, fevers, gastro-enteritis of infancy, etc.

What is the practical application of these principles? A patient presents himself to you for some complaint, and in your routine examination you discover a glycosuria. You at once tell him "You have sugar disease; you cannot assimilate sugar or starch, and you must cut these down or out of your diet entirely." Or you are an enthusiast in the Allen treatment, and without preliminary measures you begin to starve him. What happens then? Your patient has been eating a great deal of carbohydrates. He craves that sort of food. And he has been assimilating some of it. When you cut this out he is bound to live on proteins and fats. What is the result? You have done the most dangerous thing possible under the circumstances, i. e., interfered with the carbohydrate-fat metabolism ratio and produced a condition of acidosis. You give him fat, the prime source of acid bodies and protein, the next most potent source. You have taken away carbohydrate which makes it possible to burn these foods completely. There follows incomplete oxidation with the production of acid bodies, consequent depletion of the alkali reserve of the blood, interference with the other vital functions of the body and the ever-threatening danger of coma.

Joslyn says, "The specter of impending coma should ever haunt the physician who is treating a new case of diabetes." This is especially true in cases of long duration, in the obese, in children, and in cases with heart and kidney complications. The first year of treatment is always the most dangerous year for a diabetic.

Laboratory examinations are not sufficient. With experience the clinical sense becomes acute to detect the possibility of diabetic coma, which is so insidious in its onset. No surgical case requires more careful watching. A slight dulling of mentality, slight puffiness about the eyelids, slight edema and interference with eyesight are as evident to the careful observer as the characteristic odor of the breath and urine. One should immediately suspect the onset of coma with the discovery of any symptom out of the ordinary, such as anorexia, nausea, vomiting, restlessness, vertigo, great fatigue, drowsiness, deep breathing, and immediately institute treatment. Remember, it is easy to prevent coma, but exceedingly difficult to treat it.

Prior to our adoption of the principles enunciated in this paper, we used the Allen treatment for diabetes and dropped off from an ordinary diet to complete starvation, paying no attention to the carbohydrate-fat ratio. It seemed impossible to predict from the symptoms present or their duration the severity of the acidosis produced. I have spent many hours of nervous apprehension about such cases. Theoretically, diabetic acidosis should disappear on continued starvation but, practically, that is hard to continue indefinitely in the face of increasing acidosis.

At present we have adopted a different method of procedure based on the work of Joslyn. After the diagnosis is made the patient is put into the hospital and put on a fat-free diet. He is given a moderate amount of protein and plenty of carbohydrate. This may render him acid free in mild cases, but not in a severe one. After three days to a week of this diet, the protein intake is rapidly cut down until in two or three days he is on a carbohydrate diet only. The carbohydrates are then halved each day until the starvation day. Even in severe cases, and in those of children, by this method the patient is acid free for several days before starvation is commenced. Rendering the urine sugar-free and the blood sugar normal is an easy task. The patient is brighter and more alert and does not appear to suffer. The dreaded acidosis of the starvation period is no longer present. When the patient is sugar free, the steps are reversed. Carbohydrate is added first, in the form of 5 per cent vegetables, five or ten grams the first day and five to ten grams a day up to tolerance. On the third day we begin to add protein at the rate of fifteen grams a day until we have one gram per kilogram of body weight. On the sixth or seventh day, if everything is progressing favorably, we start with five grams of fat in the average case. This is gradually increased 5 to 10 grams a day, watching carefully for acidosis. The amount of fat in the yolk of one egg given at this stage in the treatment precipitated an acetonuria in a child who at the present time is taking 50 to 60 grams of fat a day with impunity.

Woodyat and Sansum have proved that brandy and alcohol during the starvation period are dangerous, for they stimulate production of acid bodies, which are not eliminated, but continue to circulate in the blood.

Formerly acidosis was considered the inevitable denoument of diabetes. Now we consider it the result of interference with the carbohydrate-fat ratio in the diet. It is preventable in the majority of cases.

The treatment of coma, present or impending, is rest in bed and at least 1000 c.c. of warm liquids every six hours. If these are not tolerated by mouth, give them by bowel, subcutaneously, or intravenously. Keep the bowels moving by enemas, and avoid cathartics in diarrhea. Get glucose into the system by mouth or intravenously. A 5 per cent solution in normal saline may be injected slowly. This will counteract the production of acid bodies.

Now as to the use of alkalies. What would seem more natural than to use Na_2CO_3 to restore the depleted alkali reserve and neutralize the acid bodies and thus bring back metabolism to nearly normal. Theoretically, this is splendid, but here again clinical observation must be the court of last resort. Our experiments are done in the human body and not in a test-tube.

A few years ago, Joslyn wrote, "Few instances in medicine occur which show more strikingly the benefit of the administration of a drug than the change from drowsiness and exaggerated respiration of beginning diabetic coma to the reawakening which follows the administration of large quantities of $NaCO_3$." To-day he has completely reversed his opinion and says that many of the deaths from coma were preventable and directly traceable to the use of alkali therapy.

The chemistry of this process is not clear, but it seems that alkali frees from a loose combination and throws into the blood stream continuously large amounts of acid bodies. To carry these away by the urine requires a tremendous output. 10,000 c. c. in twenty-four hours was a common amount. In damaged kidneys this often was the last straw.

CONCLUSION

1. Acidosis is not an acid condition of the blood and body fluids but a depletion of the alkali reserve of the body.

2. The cause of acidosis is the overproduction of non-volatile acids, which fix base and deplete the alkali reserve.

3. The great source of these acid bodies is the combustion of fat without the presence of carbohydrates.

4. Consequently, to prevent or treat acidosis, we must avoid all fat and push the carbohydrate intake.

5. The rational treatment of diabetes must ever be based on these principles.

6. In the treatment of coma, alkali therapy is dangerous and should be abandoned.

A CASE OF MELANOMA OF THE BRAIN RESEMBLING EPIDEMIC ENCEPHALITIS

By Angus W. Morrison, M. D.
MINNEAPOLIS

The difficulty at times of differentiating between brain tumor and epidemic encephalitis, especially in cases presenting few neurologic signs, warrants the report of the following case, which was under constant observation for the last four months of the patient's illness.

It is not the purpose of the report to describe the possible similar pictures the two diseases may present, but attention is drawn to the fact that the symptom complex of epidemic polioencephalitis is so variable and often so confusing that the early diagnosis of this disease may be difficult. In fact, the range of symptoms approaches, if it does not exceed, that presented by syphilis. Different observers have emphasized the fact that, psychiatrically, the clinical picture in encephalitis is still somewhat indefinite, but may be characterized by a pseudostupor, a depression of the emotional field, often with catatonic features, and there may be evidence strongly suggestive of an infectious toxic type of psychosis. On the other hand, brain tumors may present symptoms, such as apathy, mental torpor, forgetfulness, confusion, and mental decadence, together with delirium or stupor, all of which symptoms are also similar to those developing under the influence of toxic causes. From the purely neurologic viewpoint, the differentiation of the two conditions may be still more difficult.

CASE HISTORY

A woman, aged 32. The family history is of special interest. The father, who was a heavy drinker and was divorced from his wife, is dead. The maternal great grand-mother committed suicide. The maternal grandmother was in one of the State Hospitals for the insane, later dying of carcinoma of the liver. One sister shot her husband and later committed suicide, due, it is stated, to the patient's husband bringing liquor into the house, which caused trouble, leading to the murder and suicide. One sister and one brother are living and well. One brother was stillborn, following an injury to the mother.

The personal history showed no early abnormal mental or physical development. The patient was a bright girl in school and, in spite of educational disadvantages, finished the eighth grade at sixteen years of age. As an adult, she was bright, intelligent, and had a good memory. She always kept her troubles to herself and never told her parents about her associations with other people. However, she was quick-tempered. She first married at nineteen years of age. She worked for three years, at which time a boy was born. Five months later, her husband left her. Six years ago she was divorced, but at this time she was living with her present husband, with whom she lived two years before being married to him. She has always been a good worker and has made good wages. She was of a lively, happy, and cheerful make-up. No history of shut-in type, and no paranoid trends.

She had measles when a child; small-pox at 21; typhoid at 24; neuritis of the right arm a few years ago; tonsillitis three years ago, at which time there was swelling of the face, hands, arms, and legs, and influenza two years ago. She had two operations, an appendectomy and the removal of a cystocele ten and eleven years ago, respectively.

Following her influenza two years ago she complained of headaches. These were throbbing in character, sometimes awakening her in the night. The headaches would last two or three days with free intervals of one to two weeks. At times she complained of a sharp pain in the back of her neck.

In August, 1920, she complained of vertigo, nausea, and vomiting for a month, together with a severe frontal headache. She developed precordial pain, palpitation, and dyspnea. She was admitted to the Medical Service of the Minneapolis General Hospital, October 14, 1920, with the above complaints. She was discharged some four weeks later, but within a few days her headaches, vertigo, nausea, and vomiting returned and she was re-admitted to the Medical Service, December 13, 1920, and later transferred to the Neurological Service.

I first saw the patient three weeks after her second admission. At this time she complained of severe occipital pain. The general physical examination was negative. The neurological findings were absolutely negative except that the right pupil was slightly larger than the left. The fundi were normal. X-ray of the head showed nothing abnormal. Her cerebration was very slow, and it was only with a great deal of patience that any replies to questions could be obtained. She appeared wrapped up in herself, depressed, mentally retarded, and slow in speech and movement.

There developed rather sudden alternating phases of depression and retardation and catatonia, followed by periods in which she was bright, cheerful, fairly talkative, and free of pain, although, even at such times, her powers of attention and concentration showed considerable impairment and, any mental effort quickly fatigued her Later it was thought that there was some increased tonicity in the right arm and leg; and still later, on reviewing the history, this slight increase in muscle tone had been noted while the patient was on the Medical Service. At times she was quite drowsy, and it was only with difficulty that she could be made to swallow. This was probably due both to her mental state and to the relaxation of her pharyngeal muscles, as she would choke easily. It was also noted about this time that she would maintain a catatonic position of her arms for five minutes. Food placed in her mouth would be retained for hours without swallowing, and there was incontinence. At times in her catatonic periods the patient could apparently comprehend questions, but no replies could be elicited, although in her free intervals she stated she knew what was going on around her in her stupor, but could not speak.

It was not until nearly five months after the onset that any marked and persisting neurological signs developed, at which time definite Babinski, Chaddock, and Oppenheim were elicited on the left. These were inconstantly positive on the right. Deep reflexes were increased, the left knee-kick was more active than the right, and there was a short left ankle clonus. A few days later there was a mild divergent strabismus of the left eye, but there were no signs of an optic neuritis, and the patient's mental condition was such that she had to be fed by rectum.

The alternating periods of stupor and relative normalcy continued until the patient's death, April 13, 1921, four months after her second admission to the hospital.

Except for periods of nausea and vomiting, no gastric symptoms were elicited. The temperature was normal except for three days in January, when it rose to 106.4° due to an acute pharyngitis.

The urine was negative throughout except for a slight trace of bile pigment and a very faint trace of albumin. The blood on December 15 showed—hemoglobin 100 per cent; white blood cells 9,600; on January 10, red blood cells, 4,200,000, white 13,000; on February 15 hemoglobin 80 per cent, red blood cells 4,600,000, white 10,700, slight anisocytosis, slight polychromatophilia, and a few poikilocytes.

Spinal fluid on December 21: Nonne, trace; one cell; culture, negative; Wassermann, negative; colloidal gold, 111111000; on January 14, Nonne, very faint trace; no cells; colloidal gold, 1111100000; Wassermann, negative; on April 5 Nonne, negative; no cells; Wassermann, negative; culture, negative; colloidal gold, 0111110000.

Dr. J. S. McCartney, Jr., of the Department of Pathology and Public Health of the University of Minnesota, who performed the autopsy, has very kindly furnished me with the following report:

AUTOPSY FINDINGS

The body was that of a poorly developed, poorly nourished adult white female, measuring 156 cm. in length and weighing about 120 lbs. Rigor was present; lividity, posteriorly; some pitting edema of the lower extremities, extending upwards a short distance on the thighs. Two small superficial ulcerated areas over the sacrum. There was an old midline scar 10 inches in length, beginning about the umbilicus. The right pupil was 6 mm. and the left 4 mm. in diameter.

Abdominal fat measured 2.5 cm. in thickness. The omentum and coils of ileum were adherent to the parietal peritoneum at the site of the old operation. There were also adhesions between the coils of the ileum. There were bands between the fundus of the gall-bladder and the hepatic flexure. The peritoneal cavity contained no abnormal fluid. The appendix appeared normal. The diaphragm was at the level of the fourth interspace on the right and the fifth interspace on the left.

The left pleural cavity contained a few cubic centimeters of clear fluid. There were no adhesions.

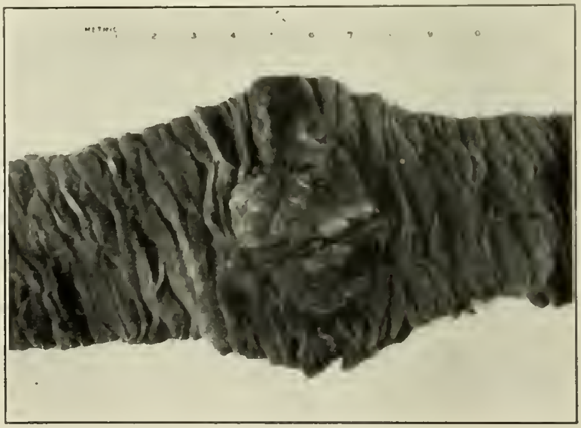
The pericardial cavity contained about 5 c.c. of clear, straw-colored fluid.

The heart weighed 150 grams. No lesions of the endocardium, epicardium, or myocardium were noted. The root of the aorta and the coronaries were normal.

The right lung weighed 190 grams; the left, 250 grams. The right lung crepitated throughout; on section no areas of consolidation were made out; no pus could be expressed. The left lung crepitated throughout except in the lower portion of the upper lobe at about the middle of the fissure, where there was a nodule about 5 cm. in diameter. On section through this it was grayish red in color, somewhat elevated above the surface of the surrounding lung parenchyma, and from it fluid could be expressed.

The spleen weighed 45 grams. Its capsule was somewhat wrinkled. Consistence was rather flabby. On section the corpuscles were indistinct. It was pale-red in color.

The liver weighed 815 grams. The capsule was smooth. On section no gross abnormalities were noted. The gall-bladder and ducts were normal.



Tumor Mass in Jejunum.

The stomach shows no gross abnormalities. On the serosal surface of the jejunum at a point 57 cm. from the pyloric ring are a number of raised, various-sized, yellowish-white nodules. This lesion almost encircled the bowel at this point. There was a similar small lesion in the ileum at a point about 2 ft. from the ileocecal valve. On the mucous surface over the lesion in the jejunum the wall of the intestine was found to be markedly thickened. The surface of the mass was irregular, quite firm, in places grayish-white, in other places congested; no definite evidence of ulceration. On cutting through the mass it gave the appearance of great thickening of the mucous membrane at this point. The mass was elevated about 2 to 3 mm. above the surrounding normal mucous membrane. The lesion measured 7 cm. transversely, and 3.5 cm. in the long axis of the bowel. The nodule in the ileum was roughly circular and about 1.3 cm. in diameter.

Its edges on the mucous surface were raised about 2 to 3 mm. above the surrounding bowel mucosa. The center of the nodule was somewhat excavated but no definite ulceration was made out.

The pancreas and adrenals were normal.

The left kidney weighed 90 grams, the right 70 grams. The capsules stripped readily, leaving smooth surfaces. On section the organs showed no gross abnormalities. The bladder was normal.

The uterus measured 5.3x3.8x2.3 cm. The cavity of the uterus was apparently normal. Both tubes were present. The ovaries were of normal size, showing a number of small subserous cysts.

The aorta showed occasional patches of intimal thickening.

The lymph nodes showed no gross evidence of tuberculosis. The lymph nodes showed no evidence of invasion from the tumors of the intestine.

The organs of neck were not examined.

The scalp and calvarium were normal. On reflection of the dura the convolutions of the brain seemed to be markedly flattened. The veins over the left hemisphere, especially over the posterior half, were markedly distended. There was a mass protruding from the left parietal lobe, measuring about 3 cm. in diameter. This mass was grayish-yellow in color and considerably congested. There was a similar mass seen in the left occipital lobe. There was no excess of fluid.

On removal of the brain and attempting to separate the two frontal lobes these were found to be adherent. There was a bulging of the left frontal lobe to the right. On cutting down through this area there was a tumor nodule measuring 3.6x2.2 cm. This tumor mass appeared to be made up of numerous smaller, various sized masses, grayish-yellow in color and with considerable blackish pigment interspersed. This tumor extended directly from the substance of the left frontal lobe into the gray matter of the right frontal lobe. The nodules in the parietal and occupied lobes mentioned above, and a small one at the junction of the left temporal and occipital lobes were essentially similar. The one in the parietal lobe, which was just posterior to the fissure of Rolando, measures 3.3x2 cm.; the one in the occipital lobe 3.7x2.7 cm.; the one in the temporal lobe 1.3x1.3 cm. The brain weighed 1150 grams.

Culture taken from blood was sterile.

Microscopic examination.—Jejunum: tumor was made up of rather large, indefinitely separated islands of cells, roughly arranged in columns or cords, the cells being for the most part fairly large but rather irregular in size and shape; nuclei rather poor in chromatin; occasional mitotic figures were present; the mucosa was absent over the surface of the tumor; in places the muscularis had been destroyed; no pigment seen.

Brain: cells essentially similar to those in the intestinal tumor but showed no arrangement into cords; in areas the cells were heavily pigmented; mitotic figures were rather more numerous; blood-vessels were rather large and thin-walled.

Lung: alveoli filled chiefly with polymorphonuclears.

Liver: fat stain showed a very large amount of fat diffusely distributed; no special tendency to involvement of particular portions of the lobules.

Diagnoses:

1. Malignant melanoma (multiple nodules in brain and intestine).
2. Bronchopneumonia.
3. Decubitous ulcers.
4. Ancient and midline surgical incision.

Comments: The case presented many interesting phases, especially from the standpoint of the prominence of the psychiatric symptoms, with a bad family history. The late development of neurological signs is explained by the tumor masses primarily invading more or less silent areas in the brain. When first seen a diagnosis of brain tumor or a psychosis was considered, but later the case appeared to fall into one of the groups of encephalitic psychopathies described by Hesnard, characterized by a lucid, catatonic stupor, in which the patient is impassive and there is viscosity of voluntary activity.* The absence of eye ground changes, which may occur even with a high degree of increased intracranial pressure, and the alternating pictures in the mental field with few neurological findings until late in the course of the disease misled us.

From the pathological standpoint the case also presented some difficulty in that the tumor in the jejunum, although probably the primary source, showed none of the pigmentation so prominent in the tumors of the brain.

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*The case was reported before the Minnesota Neurological Society in March, 1921, with such a diagnosis.

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EXORBITANT MEDICAL FEES

For some unexplained reason this subject has attracted attention and particularly in the country outside of the cities. Whether the men in the city are the subject of unjust criticism for the fees they charge country people is a debatable question. For instance, a man comes in from the country and is subjected to a physical examination, presumably a complete one, that is, one that involves the taking of a history, the ordinary critical examination from various angles, perhaps an examination of his fluids (spinal fluid or blood) and stomach contents, and then he may be subjected to a surgical investigation. Assuming for the present, in order to discuss the case, that this man is found to be hopelessly incurable and is sent home with the opinion that he has not long to live, and the man in charge of the examination renders him what he considers an adequate bill for his services; the family object, consult an attorney, there is more or less correspondence and wrangling between the attorney and the physician, and eventually the case is settled for a sum much less than that named in the bill. The result is hard feeling on the part of the friends of the patient, and anger, and distrust of the doctor who makes the examination and charges the fee.

Doubtless this state of affairs does exist. There are not many men, however, in the Twin Cities who would charge five hundred or a thousand dollars for such services, but occasionally one is found. Eventually the charge is reduced simply to get it out of the way rather than have a lawsuit. This is the doctor's viewpoint. What does the attorney do? He doubtless gets a larger fee for the settlement of that claim than does the physician, because the lawyer is accustomed to charging, and the clients have no right to object —they must pay. The physician, however, is in an atmosphere of constant criticism. The news is rapidly spread in the country that Dr. So-and-so, of Minneapolis, is overcharging his patients, is wholly unjust in the amount of his fees, and the result is that those around and in the community refuse to patronize him further. Perhaps everyone suffers from this combination of events, but the doctor suffers more than anyone else because he loses caste; and he loses the confidence of the community, however just he may feel toward himself. The answer is that due and necessary inquiry should be made into the financial status of the individual, together with the result of the examination, and then moderation and conservatism should follow before a fee is demanded. The most compromising result is that the enraged individual or his family decide that hereafter they will go to another city rather than come to Minneapolis, and if Minneapolis physicians want to hold the confidence of the people they must make their charges conform to the means of the individuals, and not inconsistent with their method and manner of living or with the amount of their property.

There is no reason why a physician should not have a good liberal fee for his opinion, because he is dealing with matters that are extremely serious and frequently have to do with the life or death of the individual; yet the fact is apparent to everyone that, commonly, the physician undercharges, and it is only the occasional man who demands exorbitant compensation.

THE WHIPPING-POST

A state legislator attempted to introduce a bill providing for the restoration of the public whipping-post for criminals, and in the bill he specifically stated that a man convicted of crime should be whipped or lashed, in the old-time way, before he was sent to prison and lashed again before being released.

For a certain class of criminals, whether they are looked upon as the so-called criminal class or whether they are high-grade morons, or even moderate defectives, the public humiliation of a good sound licking, with a good, flat strap, will affect a man's morals and his point of view much more than confinement in a well-ordered penitentiary, and certainly it would have a more lasting effect than ninety days in a workhouse or an indeterminate sentence in a reformatory. Crime is becoming so prevalent and is committed so absolutely without concealment, shame, or regret that some new measure of punishment must be introduced in order to stop wholesale robbery, theft, embezzlement, and murder, when murder might be eliminated and the robber accomplish his purpose without causing the death of his victims.

This viewpoint may not meet with the principles of new methods in criminology, but during a period of excitement following the war, when so many people became disordered in their mental outlook or developed what had been long concealed, and perhaps controlled, because of the necessities of life, the criminal class have come to the front, and for some strange reason the people are more or less indifferent, and the officials are unable to cope with the present situation. Consequently, it would seem as if some newer method of punishment should be devised; and the old whipping-post known in the earlier years brings publicity to the criminal that he would avoid if he knew something of this sort was in store for him.

It has been shown, too, that in many courts criminals escape adequate punishment. They get off on legal technicalities. They manage to escape the literal letter of the law through the connivance of their attorneys. It is recorded in New York that one man committed something like seventeen crimes and during the twenty-five years which elapsed he spent but four and a half years in prison. The rest of the time he either escaped, or his sentence was suspended, or he served but a few days in either the workhouse or prison. He was finally shot down by an officer because he was a plain, common gunman. He eventually got what was coming to him, but why should the law not have foreseen the possibilities of his future life and confined him long enough so that he either might have regained his citizenship or at least have been prevented from committing so many crimes. If such an individual, a criminal by association, a defective by environment, is permitted to go on in his criminal career without adequate confinement or punishment he is simply inciting others to follow in his footsteps.

Hennepin County has to its credit the conviction of a large number of criminals, approximately 80 per cent tried before the courts. Many others, however, who are never apprehended are still at large and still carrying on their work as burglars or murderers because the officers of the law are not sufficient to cover the territory and prevent their escape or their recognition. A little physical flagellation would be a very good warning to the men who are determined to follow crime as a profession or pursuit.

THE COLORFUL EFFECT OF MOONSHINE

The authorities in various cities, particularly those who are employed to enforce prohibition, decided that this New Year would not be ushered in with the usual revels, dissipation, and debauchery. In the great cities of New York and Chicago, and doubtless in many other places, a very careful watch was set upon public places, dining-rooms, cafes, etc., to prevent the men and women from carrying concealed liquor. Of course, to a certain type of people this was an invitation to evade the law, and the result was just what might have been expected. The deaths resulting and the hospital cases that occurred on New Year's eve and New Year's morning justified the statement that it is very difficult to prohibit the use of intoxicating liquors when people are determined to enjoy them. Many deaths occurred all over the country, and a great many people were taken sick and suffered the usual effects of poisonous whiskey or bad alcoholic moonshine.

Even in Minneapolis, where we are supposed to observe the rigid letter of the law, there were many evaders, and many who either had to remain in a hospital for days or who remained in the privacy of their homes because they chose to drink stuff of unknown quality, but supposedly intoxicating. On New Year's day a few friends gathered together. In the morning the men succeeded in getting a few drinks, and at dinner this little party were enjoying themselves when suddenly one of their members got up, danced around the table, disappeared, went into the bathroom and shot himself, thus breaking up one of the best-known traditions we enjoy, a friendly and family dinner party. Who was to blame? No one knows except that it was supposed he had taken enough moonshine to cause a temporary fit of insanity. His condition was more or less recognized as that of one who was overfed with intoxicating liquors, but no one thought for a moment that he was out of his mind to such an extent that he would deliberately take his own life.

Judging from the evidence gained by the prohibition agents, the amount of poor whiskey and bad moonshine in this county alone is quite enough to upset the entire community if they could reach it, but, fortunately, most of it has been "sewerized," that is, all of the "still-stuff" that has been picked up and a lot of bad whiskey have been destroyed, leaving only the other "home brew" that has not been reached and a certain definite amount of standardized alcohol and whiskey that are kept under Government control, in Government warehouses. Yet, daily, Government agents are able to find, to confiscate, and destroy a large amount of new brew, which, if permitted to circulate, would probably cause much suffering and many deaths.

The Government has recently appropriated $9,250,000 to carry on the war against the sale of alcoholic liquor, and it will probably take every cent of it and a great deal more before the country can be considered safe.

The Journal of the American Medical Association has sent out a series of questionnaires as to the necessity and value of beer and light wine as medicinal agents, with the result that the opinions of men who have responded have decided, unfortunately by a small majority, that there is no reason for the prescribing of light wines and beer in medical cases. There are rare instances, perhaps, where both might be helpful, but the number of such cases is so small that there is no justification for any effort on the part of the physician to prescribe either whiskey or wine or beer.

It was said, in a recent issue of the daily press of Minneapolis, that the doctor's whiskey-pad saves 98,782 victims of colds in the year. This is revealed by the state prohibition director's report. In commenting on this the press goes on to say that this large number of people might have passed out with only a headstone in the cemetery and a footnote in the obituary column to mark their exits. Or, putting it another way, there might have been the same number of cases of pneumonia had the doctor not prescribed liquor to cure the cold. The figures are carried on to a point where it shows that ailing Minneapolitans took 1,481,730 drinks to cure their ills. Some of the patients, after apparently being on the road to recovery, suffered relapses and had to be prescribed for again and again. The figures further show that 25,575 more patients were treated by the liquor route in 1921 than in the year 1920, and the directions commonly written on the bottle of so-called medicine prescribed a tablespoonful at a dose, three times a day, in a little water.

How long this farce will continue no one knows, for it sometimes seems that even prohibition agents fall victims to their own activities, and become demoralized, seeing more money in the sale of bootleg liquor than in working for the Government. This, of course, is human nature personified. It shows our weaknesses and the inability to disguise our desires. Yet the Government at Washington still lives, and is still trying heroically to down this great evil. Incidentally, we hear of some man who is arrested with twenty-five or thirty ounces of morphine on his person. He has gotten tired of drinking poor whiskey and wants something that will do him more good and give him more peace of mind without the possibilities of a lethal dose of liquor, and the blindness and craziness and paralysis which accompany an overdose of moonshine.

BOOK NOTICES

Surgical Clinics of North America, Vol. 1, Nos. 3 and 4, Boston and Chicago Numbers, illustrated, Philadelphia and London: W. B. Saunders Company, 1921.

The Boston number consists of clinics from Massachusetts General, Peter Bent Brigham, Boston City, Children's and Parker Hill Hospitals, and from the Free Hospital for Women. There is an interesting and comprehensive clinic on head injuries by Dr. E. H. Nichols, ten cases being shown. Dr. Cheever has an operative clinic of two cases of tuberculous mastitis. The discussion of these cases and of his cases of gastric disturbance will prove very instructive. As a part of the clinic of Dr. William P. Graves, we have a series of cases of cancer of the cervix treated by radium. The discussion of this subject by a man of such wide experience is, of course, well worth reading, as is his discussion of another series of cases of menorrhagia in young women treated by radium. Dr. Cotton and a number of other men have clinics on various bone and joint disturbances. Other surgical diseases in great variety are covered by the remaining clinics. The number comprises about three hundred fifty pages and is profusely illustrated.

The list of contributors to the Chicago Number includes a number of nationally prominent surgeons. An appreciated innovation with this Number of the Clinics is the insertion of a summary of each clinic in a few lines directly under the title heading.

Dr. Arthur Dean Bevan treats two cases of x-ray burn by excision of damaged tissue and skin-grafting. He then operates on a case of acute appendicitis and a case of pyloric carcinoma under local anesthesia, the patients being about eighty years old and in debilitated condition. The methods are well described and illustrated.

Dr. Kanavel uses Laboot's paravertebral method of anesthesia for a case of splenectomy.

Dr. Ochsner describes ligation of the interior thyroid artery by the technic of Professor Dequervain, and discusses the relation of local anesthesia to this operation and to partial thyroidectomy.

Among the other interesting clinics are some by Carl Beck, E. Wyllys Andrews, Eisendrath, DeLee, Gatewood, and Halstead.

Theodore H. Sweetser, M. D.

Principles of Medical Treatment. George Shattuck, M. D., A. M., Assistant Professor of Internal Medicine, Harvard Medical School. Fifth edition. Boston: William B. Leonard, 1921.

Dr. Shattuck's "Principles of Medical Treatment" is superior to the typical, bulky treatise on therapeutics in at least two ways. In the first place, it is presented in concise, outline form, so that all the usual unnecessary verbiage is absent, which conserves the reader's time. Secondly—and this is more important—the therapeutic measures it advises are all based upon rational physiological and pathological principles. It is these principles which Dr. Shattuck stresses, and the treatment is simply the logical corollary to a correct grasp of any particular medical situation. The principles of treatment embodied in this handbook were originally the author's brief lecture course at the Harvard Medical School, and comprise what is still largely the method of the Massachusetts General Hospital. If such an outline as this barely escapes the damning accusation of "therapeutic nihilism," it has the advantage of being limited to a small body of medical therapeutics which have been thoroughly tried out in the hands of a group of competent and critical physicians, with much useless material wisely eliminated.

The appearance of a fifth edition within five years is adequate indication of the work's usefulness.

Dr. Hawes' section on "Tuberculosis" and Dr. Place's on "Acute Infectious Diseases" have been somewhat amplified. There are also brief new chapters on "Influenza," by Dr. Gerald Blake; "Diabetes Mellitus," by Dr. B. H. Wangle, and the "Serum Treatment of Pneumonia," by Dr. H. M. Thomas. The remarks on the treatment of diabetes are somewhat too sketchy and indefinite to be of much value to the average student or practitioner.

It is doubtful whether the enlargement from the convenient pocket-size edition to the bulk and dignity of the "Case History Series," especially as it is accomplished largely by thicker paper and larger type, is justifiable. Nevertheless, this new edition of "Medical Principles of Treatment" meets a definite need of both students and practitioners.

—Harold Rypins, M. D.

Eye, Ear, Nose and Throat. By Drs. Casey Wood, Albert H. Andrews and George Shambaugh in the Practical Medicine Series for 1921.
Chicago: The Year Book Publishers. Price $1.75. Price of series of eight volumes, $12.00.

This small book is one of a series of eight volumes issued by the Year Book Publishers, covering the year's progress in the various specialties.

If the books dealing with the other branches maintain a standard in accordance with this volume the success of the series is not to be wondered at.

The distinguished editors, Dr. Casey Wood, Dr. Albert H. Andrews, and Dr. George Shambaugh are peculiarly fitted by their wide experience to select from the literature the things that are of definite, practical importance.

The abstracts are well prepared and the few editorial comments are illuminating.

—Arthur E. Smith, M. D.

NEWS ITEMS

Dr. C. A. Pierson has moved from Breckenridge to Wheaton.

Dr. G. P. Shepard has moved from Jamestown, N. D., to Yakima, Wash.

Dr. F. A. Northrup has moved from Draper, S. D., to Fort Pierre, S. D.

The South Dakota State Medical Association will meet in Huron on May 16, 17, and 18, 1922.

Dr. Harry Yoskit has been transferred from Hot Springs, S. D., to National Military Home, Kansas.

Dr. James A. Cosgriff, of Lamberton, was married last month to Miss Emilie Forster, of Minneapolis.

The North Dakota State Medical Association will hold its next annual meeting in Jamestown on June 1 and 2.

Rochester Minn., is "on the map" again. In November and December only four cases of reportable diseases were recorded.

The Hibbing post of Disabled War Veterans favors the establishment of a hospital in the Northwest for tuberculous soldiers.

The sale of stock for a community hospital at Moose Lake has been so satisfactory that work on the building can begin in the early spring.

Bread tickets and free lodgings will not be given by some cities to unvaccinated men. Minneapolis has adopted this plan, and other cities find it worth while.

Dr. F. J. Kucera has taken over the practice of his brother, Dr. W. J. Kucera, at Hopkins, who has gone east to take an extended course in eye, ear, nose, and throat work.

Dr. E. R. Bray and Dr. John L. Shellman, formerly associated with Dr. F. E. Burch, all of St. Paul, have opened offices in the Lowry Building for eye, ear, nose, and throat work.

Dr. O. C. Maercklein, of Mott, N. D., inoculated over thirty school children in one township of Hettinger County, N. D., with diphtheria antitoxin last month. This is said to be the first work of its kind in North Dakota.

It is semi-officially announced by the Osteopaths of Minnesota that no effort will be made at the meeting of the next legislature to obtain the passage of a bill giving Osteopaths the right to perform surgical operations.

The first round in the legal battle between the Duluth Board of Health and the Chiropractors, to determine the right of a Chiropractor to sign a death certificate was won by the Board last month. The case will be appealed.

The Minneapolis Health Department has planned to vaccinate 10,000 school children between now and June. The vaccination is not compulsory, but few object to it. Twice this number of pupils were vaccinated last year.

A design or suggestion to remove many or all of the reserve medical officers in the Government hospitals and replace them with civil practitioners has swamped the U. S. Treasury Department with telegrams of protest. It will not be done.

Dr. Albert J. Murdock, of Minneapolis, died on January 4 at the age of 75. Dr. Murdock graduated from the College of Physicians and Surgeons of Columbia with the class of '70, and came to Minneapolis in 1883, thus having practiced in this city nearly forty years.

Dr. Christian Johnson, formerly of Willmar, Minn., died in Everett, Wash., on Jan. 5, at the age of 69. Dr. Johnson was formerly a frequent contributor to our columns and his spicy letters on public topics will be remembered by our older readers. He practiced in Willmar for many years.

One of the Minneapolis moving-picture shows has been giving a series of pictures showing a boy in his course through the General (the City) Hospital after an accident. This is done for educational purposes, and to let the people know what *their* hospital—the people's hospital—is doing for them

"Dr." Kirby, a new John Till, of Northwood, N. D., and Thief River Falls, Minn., was bound over to the grand jury at his trial last month in Grand Forks on a charge of manslaughter. His sole treatment was to paint the necks of his patients, one of whom died of septicemia, probably induced by the treatment.

The first annual dinner given to the staff of the Miller Memorial Hospital, of St. Paul, by the Board of Directors of the hospital, occurred on January 6. Mr. C. W. Gordon of the Board was toastmaster, and addresses were made by Drs. Eduard Boeckmann, Arthur Sweeney, Archibald McLaren, and Herbert Davis, of the staff.

Dr. Walter D. Berry, of Battle Lake, superintendent of the Ottertail State Tuberculosis Sanatorium, has contributed to a Minneapolis paper a very interesting account of his part in building up a very famous football team at Centre College, Kentucky. Dr. Berry was the first coach of this really great team and laid the foundation for its later work.

A group of 80 men and women who are engaged in public health and social service work in Minneapolis recently gave silver trophies to Dr. F. E. Harrington, City Health Commissioner, and Dr. Walter E. List, Superintendent of the General (City) Hospital, in recognition of their efficient and splendid service. These people recognize and reward public-service work; the politicians do not.

Mr. Otto F. Bradley, who has been an exceedingly efficient public health worker in Minneapolis for a number of years, has resigned the secretaryship of the Hennepin County Anti-Tuberculosis Committee of the Associated Charities to accept a positon as secretary of the Milwaukee Centralized Budget of Philanthropies. Mr. Bradley carries the good will of all Minneapolis physicians to his new work.

The State Board of Health of Montana announces its intention to begin an actve campaign of maternity and infant welfare, made possible by funds appropriated under the Sheppard-Towner bill, recently passed by Congress. In anticipation of the passage of this bill the Board, at its October meeting, elected Dr. John Sippy, of the Board, director of the Child Welfare Division. The State Medical Association at its last meeting appointed a committee to co-operate with the director of the Child Welfare Division.

At the annual meeting of the Hennepin County Medical Society, held on January 2, the following officers were elected: President, Dr. A. E. Benjamin; first vice-president, Dr. A. E. Hedback; second vice-president, Dr. James Reynolds; librarian, Dr. F. L. Adair. The secretary treasurer, Dr. R. T. LaVake, holds over. Dr. George Douglas Head, the retiring president, read the presidential address, which was on "Traditions and Ideals of Our Profession." A committee of ten was elected to oppose any bill that may come before the next legislature granting Osteopaths the right to perform surgical operations.

The second annual Clinic Week of St. Paul is in session as this issue of The Journal-Lancet goes to press. The attendance on the opening day was larger than that on the opening day last year, and the program, scientific and general, is very attractive.

The Minnesota, North Dakota, Montana, and Wisconsin sections of the American College of Surgeons met in St. Paul on January 9. The usual program of the sectional meetings was presented, with an evening public meeting in the People's Church, at which Dr. Thos. McDavitt presided. Addresses were given by Dr. Franklin H. Martin, Director-General of the American College of Surgeons; Dr. Frederick A. Besley, of the Northwestern Medical School; Dr. C. H. Mayo, of Rochester; and Rev. C. B. Monlinier, President of the Catholic Hospital Association. Standardization of hospitals, the practice of fee-splitting, and the doing of unnecessary operations for the sake of a fee, were roundly scored.

The fourth annual meeting of the Huron (S. D.) District Society was held in Huron on Jan. 4. The annual reports of the officer and committees showed that the society has had a very successful year. The secretary, Dr. L. N. Grosvenor, of Huron, reported the present membership at 30, and that the attendance at each of the eight meetings of the year had been good, and that the work of public health and other committees had been fruitful of results. Papers were read by Dr. A. W. Swedenberg, Sioux Falls; Dr. W. O. Leach, Huron; Dr. W. H. Saxton, Huron; and Dr. J. H. Swaford, Aberdeen. Officers for 1922 were elected as officers: President, Dr. B. H. Sprague; vice-president, Dr. L. N. Grosvenor; secretary-treasurer, Dr. W. H. Saxton; censor for three years, Dr. E. B. Taylor; delegate, Dr. J. C. Shirley—all of Huron. Dr. F. A. Spafford of Flandreau, secretary of the State Association, was present and spoke of the plans for the next annual meeting of the Association.

TWENTY-SIXTH SEMI-ANNUAL SESSION OF THE SIOUX VALLEY MEDICAL ASSOCIATION

AT SIOUX CITY, IOWA

Wednesday and Thursday, January 25 and 26, 1922

Headquarters and Sessions
at Chamber of Commerce

WEDNESDAY, JANUARY 25, 1922

Morning Session, 9:00 o'clock

ORDER OF BUSINESS

1. Calling the meeting to order by the President.
2. Reading minutes of previous meeting.
3. Report of Board of Censors on applications for membership.
4. Report of Committee on Arrangements.
5. Report of Special Committees.
6. Report of Treasurer and Standing Committees.
7. New business.
8. Reading and discussion of papers.
9. Unfinished business.
10. Adjournment.

PROGRAM

1. "Actinic Ray in Dermatology"—G. E. Barr, M. D., Sioux City, Iowa.
2. "The Deficiency Diseases of Children"—B. A. Melgaard, M. D., Sioux City, Iowa.
3. "Frequency of Abdominal Pain in Throat Infection in Children"—Goldie E. Zimmerman, M. D., Sioux Falls, S. D.
4. "Intussusception: Some Points in Diagnosis and a Plea for Early Recognition"—Floyd Clarke, M. D., Omaha, Neb.
5. "Surgical Aspects of Scarletina: With Report of Illustrative Case"—F. S. Hough, M. D., Sibley, Iowa.

Afternoon Session, 1:30 o'clock

1. "End Results in Surgery of the Stomach"—J. N. Warren, M. D., Sioux City, Iowa.
2. "Treatment of Brain Tumors"—Lantern-slide illustrations—Alfred W. Adson, M. D., Rochester, Minn.
3. "Spondylolisthesis: Diagnosis and Treatment"—Illustrated by moving pictures—W. Eugene Wolcott, M. D., Omaha, Neb.
4. "Experiences with Negative Pressure in Empyema"—N. O. Ramstad, M. D., Bismarck, N. D.
5. "The Management of Cholelithiasis" — Lantern-slide illustrations — Alfred J. Brown, M. D., Omaha, Neb.
6. "Carrel-Dakin Treatment in Civil Practice"—J. A. Weinberg, M. D., Omaha, Neb.

Evening Session, 7:00 o'clock
Banquet, $1.50 per cover
Chamber of Commerce

1. "The Lymph Glands in Carcinoma of the Uterus"—Emil Reis, M. D., Chicago, Ill.
2. "The Development of Anatomic Illustrations"—Illustrated by lantern-slides — LeRoy Crummer, M. D., Omaha, Neb.

THURSDAY, JANUARY 26, 1922

Morning Session, 9:00 o'clock

1. "Personal Experiences in the Operative Treatment of Eclampsia"—Monte A. Stern, M. D., Sioux Falls, S. D.
2. "Pre-operative Management of Enlarged Prostate"—Wm. Jepson, M. D., Sioux City, Iowa.
3. "Complications of Prostatic Enlargement and Their Surgical Treatment"—G. G. Cottam, M. D., Sioux Falls, S. D.
4. "Treatment of Gonorrheal Rheumatism"—Franklin R. Wright, M. D., Minneapolis, Minn.

5. "Injuries to the Pelvis Complicated by Dislocation of Head of Femur"—C. W. Hopkins, M. D., Chief Surgeon, C. & N. W. Ry. Co., Chicago, Ill.

Afternoon Session, 1:30 o'clock

1. "Fundamental Biological Principles Underlying Radio-Therapy"—N. J. Nessa, M. D., Sioux Falls, S. D.
2. "The Classification of Anemias" — Illustrated by colored lantern-slides—Frederick Proescher, M. D., Pathologist to St. Vincent's Hospital, Sioux City, Iowa.
3. "The Goiter Problem"—P. B. McLaughlin, M. D., Sioux City, Iowa.
4. "Otitic Meningitis: Case Report"—J. C. Decker, M. D., Sioux City, Iowa.
5. "A Survey of Two Hundred Cases of Pulmonary Tuberculosis"—John W. Shuman, M. D., Sioux City, Iowa.

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OFFICE, FURNITURE, INSTRUMENTS, ETC., FOR SALE

The office furniture, instruments, books, drugs, etc., of the late Dr. A. J. Murdock, of Minneapolis, are for sale at low prices. Address or call 3161 Columbus Ave., Minneapolis, or telephone, call South 0483.

LOCUM TENENS WANTED

Not later than March 1, a service man or recent graduate, preferably a general practioner who can refract. Address 207 care of this office.

TECHNICIAN WANTS POSITION AT MODERATE SALARY

Can do urinary, blood, gastro-in-testinal and tissue work and Wassermanns. Speaks, English, Norwegian, and German fluently, with a reading knowledge of French. Best of references. Address 209 care of this office.

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A young woman wants a position as laboratory technician preferably in the Twin Cities, either with a group of physicians or in a commercial laboratory. Experience: clinical routine laboratory bactriological and basal metabolism work. Best of references. Address 210, care of this office.

PHYSICIAN WANTED

A physician and surgeon for a live town in Northwestern North Dakota with an unlimited territory. Splendid opening for a young graduate interne properly recommended or for any good practitioner. Immediate opening, worth $7,000 to $10,000 yearly to the right man. Address 208 care of this office.

LOCUM TENENS WANTED

To take charge of a general practice in a central Minnesota town of 800 from February 1 to March 15. Community mostly German and Catholic. State age, and salary wanted. Address 201, care this office.

X-RAY APPARATUS FOR SALE

A Scheidel-Western X-ray Coil, 220 D. C., 25 Ampere, size 16, tube stand, and lead-glass bowl; all in good condition. For sale for $125. Address 202, care of this office.

PRACTICE AND DRUGS FOR SALE

An unopposed practice and location for sale in a town in the Southern tier of counties in South Dakota. Fine farming country and good roads. Nearest competition, 20, 25, 26, and 30 miles. Drug store (two stories) with living rooms above, for sale with practice. Practice averages $400 per month. Price, $3,500; cash required, $2,000. Address 203, care of this office.

FOR SALE

X-Ray Laboratory complete and practice of an *x*-ray technician in a Minnesota city doing a flourishing business. Practice can be greatly increased by treatment and diagnosis. Outfit consists of a Victor transformer; protective shield; Coolidge units; combination fluoroscopic table, gas, and Coolidge tubes; Coolidge stereoscope, Buckey diaphragm, and accessories, with office fixtures. Reason for sale, other interests. For sale as a whole. Address 204, care of this office.

LOCUM TENENCY WANTED

A competent practitioner in an established partnership is available for locum tenency. Address 205, care of this office.

LOCATION WANTED IN SOUTHERN MINNESOTA

A recent graduate, with some experience and good personality, desires a location in Southern Minnesota, preferably in a town with hospital facilities. Speaks Scandinavian and English. Address 206, care of this office.

THE
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DIGITALIS: ITS CLINICAL APPLICATION*

By S. M. White, B. S., M. D.
MINNEAPOLIS, MINNESOTA
From the Department of Medicine, University of Minnesota†

In modern medical research it is attempted to determine clearly the pathologic and physiologic basis of disease and to differentiate clearly in therapy between that which is specific in nature, that is, aimed toward the cure of a disease, and that therapy which is functional, that is, aimed at the correction of disorders of function either by removal of the source of functional disarrangement or by affecting function in such a manner as to overcome functional imbalance. In the field of therapy of the heart, curative or specific therapy as we understand it today, has a very limited application, preventive treatment having, in the specific field, a far wider range. Hence the active search for focal infections and the activities in public health aimed toward the prevention of cardiovascular disease. In syphilis alone, among the major causes for cardiac disorder, can we speak today confidently of specific therapy if we except the few and feeble attempts at surgical approach in wounds and septic infections.

We have a few fields today in which striking functional therapy is at command, and it is principally in the field of the internal secretions. Those of the thyroid and adrenal are most notable, the pituitary providing a field of active study with some definite results. In drug therapy the digitalis group stands as an example of the results of physiologic and pharmacologic study. They illustrate, also, how slow progress in medicine may be. It is customary in discussing digitalis, to introduce the name of Withering as evidence of erudition, but the name is introduced here for the purpose of calling attention to the fact that, pioneer as he was, he probably used digitalis more intelligently than its average use in later times and that he employed the large doses to full physiologic effect sometimes used to-day. Withering also limited the use largely to what we now recognize as decompensation, a limitation toward which we are returning. For a century following his time, digitalis, because of its brilliant results in a very limited field, came to be looked upon as a specific drug in cardiac disorder; but physiologic and pharmacologic studies within very recent years are uncovering much of the mystery surrounding the drug and giving us a firm basis for the use of digitalis as it effects cardiac function.

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*Presented at the Thirty-fourth Annual Meeting of the North Dakota State Medical Association, Fargo, N. D., May 26 and 27, 1921.

†The animal experiments quoted in outline in this paper were made possible through a grant to Dr. R. E. Morris fom the Council of Pharmacy of the American Medical Association.—The Author.

Digitalis therapy must be looked upon definitely as functional or physiologic, and not in any sense as specific; and with this conception clearly in mind much of the routine use of the drug is at once eliminated. In discussing digitalis therapy an enormous amount of time and effort might be taken to review the literature, but the result would be confusing rather than clarifying, and it is attempted here to cover the experience of the writer in the laboratories and in the clinic of the University of Minnesota. At the same time the debt owed students in both the pharmacologic and clinical fields is acknowledged. The names of Hatcher and Eggleston, Hirschfelder, Thomas Lewis, and Sir James MacKenzie, are household words when one discusses digitalis therapy as related to heart function. There are many others too numerous to mention.

In studying the effects of digitalis, Dr. R. E. Morris and the writer have made use of a large number of animals. In the standardization of digitalis the use of anesthetized cats, modifying the technic of Hatcher and Brody[1], was determined on. The reason for using the cat rather than the frog methods of Haughton, and of Famulener and Lyons, and the guinea-pig method of Reed and Vanderkleed, was that (1) the anesthetized cat lends itself to electrocardiographic study throughout the period of administration up to and including exitus, and (2) the results are studied in the living animal more closely related to man and with circulation intact. Some of the results of this study were reported before the May, 1920, meetings of the Association of American Physicians[2].

A part of the study was made on digitalis lutea and digitalis thapsi, the records when compared showing that no essential difference could be discovered by this method experimentally between these species of digitalis and the official digitalis purpurea. After study of a considerable number of records using official preparations of digitalis purpurea, as well as corresponding preparations of the other species of digitalis, and after consideration of the effects in man during therapeutic administration, the following points were decided upon in this experimental work as of greatest value in the study:

1. Slowing of auricular rate.
2. Decrease in the P-R interval.
3. Increase in the P-R interval.
4. Partial block.
5. Complete dissociation of auricles and ventricles.
6. Beginning flattening of the T wave.
7. Inversion of the T wave.
8. Increased height of the T wave.
9. Change in ventricular complex.
10. Ventricular extrasystoles.

In the discussion of these phenomena as related to the clinical phenomena in man we find that the principal interest centers around (1) slowing of the auricular rate, (3) increase in the P-R interval, (4) partial block, (5) complete dissociation of auricles and ventricles, and (6 and 7) changes in the T wave, together with other (9) changes in the ventricular complex, and (10) ventricular extrasystoles.

In the animal studies wide variations were found in the occurrence of these events. Probable factors in this other than individual variation in reaction to the drug may be the coincident anesthesia and the intravenous method of introducing the drug during the short period of one and one-half to two hours.

A demonstrable slowing in auricular rate did not occur in all animals. It could be demonstrated in 45 to 90 per cent, and at approximately 20 per cent of the lethal dose as an average. It occurred at doses as low as 12 per cent of the lethal, in one instance even 6 per cent, and in other instances did not occur until 70 per cent of the lethal dose had been administered.

Increase in P-R interval occurred in 70 to 85 per cent of all animals and at an average close to 25 per cent of the lethal dose. Here, too, wide variations were seen in the time of appearance, 12 and even 9 per cent of the lethal dose marking its occurrence as the lowest point, and 77 per cent of the lethal dose in one instance as the point in which it could first be demonstrated.

Partial block and complete dissociation of auricles and ventricles could be demonstrated in widely varying percentages of animals for the different species of digitalis used. We believe, however, that the wide variation seen is in part due to the limited number of animals used. Partial block and complete dissociation in these animals developed at about the same percentage of the lethal dose, approximately 60 to 70 per cent. The lowest percentage at appearance was 25 per cent, and the highest percentage at appearance was 95 per cent.

The changes in the T wave showed very much the same variability as has already been given for other phenomena. The changes here are more definitely progressive, and, as shown by animal experimentation and by study in man, these changes in the T wave are of particular value as marking the earlier appearance of digitalis effect and reveal in man its persistence over a considerable period of time.

Cohn, Frazer, and Jamiesen[3] have studied the changes in the T wave in man, and show both the early appearance and the persistence of these changes. We[4] have shown changes as early as twelve to twenty-four hours after beginning administration by the Eggleston method, and persistence for six to fourteen days, once for nineteen and once for twenty days, after discontinuing the drug. The most marked persistence occurred after full physiologic effects had been secured by the commonly used "tonic" doses of three to four cubic centimeters of tincture daily for several days.

The changes in the ventricular complex are often very great, and it is our belief that they emphasize the effects of digitalis on the entire conducting system of the heart. Ventricular extrasystoles occurred in our experimental animals as they do in man. The event is usually interpreted as an evidence of an increased irritability of the ventricular musculature due to the drug.

Turning now to the effects of digitalis as seen in man we must remember that we are concerned with the entire series of effects produced by the drug and are not limited to the electrocardiographic phenomena in determining them. Here we are dealing with a patient in whom definite subjective and objective phenomena occur, sometimes over a long period of time, and we are concerned quite as much with the comfort of the patient as with the readings of the electrocardiograph, blood pressure apparatus, vital capacity tank, etc.

Until recent years much discussion has centered around the effect of digitalis upon the tonus of the heart muscle, upon blood pressure, and upon heart rate. The effect upon tonus has been demonstrated in experimental animals, but upon man this demonstration has not been made with the same clearness, the principal studies being made upon heart outline, using the data secured by percussion, which is, as we know, notoriously unreliable. The only indication which seems to be available and reliable is with the orthodiagram or with the teleoröntgenogram, demonstrating whether or not there is definite reduction in heart size dependent solely on the effects of digitalis. This, as yet, has not been clearly established, and we must wait for studies of this kind. The idea that blood pressure was affected prevailed for a number of years, but Eggleston in his clinical studies failed to find marked and constant blood pressure changes, and Hart[5] states that in his studies in pneumonia, comparing a large series of cases with and without digitalis, "no difference could be noted in the two series in the behavior of the blood pressure."

In our clinical work in the University of Minnesota blood-pressure studies have been made in a very large series of cases without finding a definite increase in blood pressure which could be attributed to the drug. This false impression which reigned for so long with regards to blood-pressure changes, as a result of digitalis administration in man, should lead to repeating the warning against the transfer of results of animal experimentation to man except in broad outlines and when definitely confirmed by corresponding changes in animals and in man.

Changes in the pulse rate are susceptible of definite study, and here, too, in broad outline it may be stated that but little effect upon the pulse rate is secured in man in therapeutic doses except when some form of heart block, partial or complete, is induced. Exceptions to this statement may be those instances apparently rare in man in which more rapid rhythms or irregularities develop as a result of digitalis.

Paul D. White[6] gives tracings from two patients showing ventricular escape as a result of digitalis, in one of which the ventricular rate exceeds the auricular.

Krumbharr[7] considers digitalis as a possible factor in the production of auricular fibrillation in his Case 5.

Cushny[8] shows that ventricular fibrillation may develop in experimental animals as a result of digitalis, and in our cat series ventricular fibrillation developed as a terminal phenomenon in the great majority.

From the standpoint of electrocardiographic study the principal changes in the heart as a result of administering digitalis in physiologic doses is a diminution in the conductivity in the bundle of His. This is shown either by prolonged conduction time (P-R interval in the electrocardiogram) or by partial or complete block. In cases of auricular fibrillation there is no way of measuring conduction time and the diminished conductivity is expressed in a diminished ventricular rate. In transient and paroxysmal auricular fibrillation digitalis may help to terminate the attacks[9].

In auricular flutter the administration of the drug in proper dosage and manner frequently results in the disappearance of the abnormal mechanism[10].

When digitalis is given to an individual with normal conducting mechanism and normal auriculoventricular sequence certain changes susceptible of definite study may occur. Large doses of the drug must be given to secure these. In our experimental animals an increase in the time period of conduction was secured only when an average of 25 per cent of the lethal dose was given intravenously. To secure partial block or complete dissociation 60 to 70 per cent of the lethal dose was required. Since the common therapeutic dose in man is approximately 45 per cent of the lethal dose in animals it is apparent that, if the results are similar in man to those in animals, a dose much larger than the therapeutic dose must be given to secure a partial or complete block in individuals with normal conducting mechanism, while the full physiologic dose, in some instances, might cause delay in conduction time in such individuals. Where, however, there is disorder in the conducting mechanism the picture is quite different. If the bundle of His is already depressed in any degree in its function by disease the administration of digitalis brings about conduction changes more readily than in the normal heart, and we have records in the clinic showing delay in conduction (recorded as increased P-R interval in the electrocardiogram) in cases where some minor grades of conduction defect have occurred. When the administration of digitalis is pushed in these cases further delay in conduction may occur and may increase to a point where certain of the impulses do not reach the ventricles. We are then in the presence of a partial block. Even a complete block has occurred after administration of digitalis.

The unwisdom of digitalis therapy in such cases scarcely needs discussion, although in our work the few cases in which partial or complete block has occurred under digitalis have shown no serious deleterious effects which we could measure. The block has always passed off within a few days after suspending the drug, being two, three, or four days in duration, not accompanied by serious symptoms, and may be caused to disappear by full doses of atropin. Nevertheless, the occurrence of block is distinctly undesirable and is to be avoided, and no pains should be spared in any case in which digitalis is administered in the presence of the normal sequence of auricles and ventricles to study the effects on the conducting mechanism and prevent the occurrence of partial or complete block. After a study of a considerable number of instances in which a slowing conduction without actual block was shown, I am also of the opinion that a P-R interval increased to over two-tenths of a second should be an index for refusal to administer the drug or for its discontinuance when a delay in P-R interval develops. The reasons for avoidance of digitalis in hearts with conduction defects are not far to seek. Every missed beat must interfere in just so far with the systolic output of the heart. It might be argued that the supposed increased tonicity would compensate for the missed beats, but to introduce one disturbance while minimizing another seems illogical. In addition the well-known dangers of Adams-Stokes' syndrome should deter us from any approach to complete block. Death has been reported to occur with the development of the syndrome, and every consideration would lead us to an avoidance of a partial or a complete block. There might be an argument as to whether a delay of the conduction interval of itself, without partial block, is harmful. It is conceivable that a heart might be increased in tone at the same time that a moderate delay in the conduction time occurred, and, if these factors could be accurately controlled and a partial block prevented, there might be no harm done. This would require extraordinary, vigilant supervision, electrocardiograms (or at least polygrams) daily, and these considerations would make the use of the drug impossible in such a case in general practice and impracticable in the clinic. Furthermore, the dividing line in dosage between that producing a moderate prolongation in P-R interval, and that producing a partial or complete block is a very narrow one, and the latter phenomenon may develop without warning. For these reasons it seems to me that any appreciable delay in conduction interval is a reason for the avoidance of digitalis, and, if this delay develops after beginning the drug, it is an indication for its prompt discontinuance.

The conditions under which conduction defects are likely to occur are the acute myocardial degenerations and infections, with infectious diseases, and with acute endocarditis; chronic myocarditis arteriosclerotic in origin, infective or luetic. For this reason it has seemed to us that the administration of digitalis in pneumonia at least in doses large enough to be effective in other conditions may be as harmful as it is thought to be beneficial, and I have with few exceptions avoided its use in this disease. Hart[11] in a careful study of digitalis response in bronchopneumonia, in a recent epidemic, states: "The hearts of those patients without digitalis and those to whom it was given behaved in a similar manner, except that the electrocardiograms of those receiving digitalis showed the characteristic changes, and in two instances an arrhythmia developed, which proved to be due to a condition of a partial heart block." He reports four cases out of several hundred in which digitalis was given with the development of evidences of partial block attributed to the digitalis.

In consultation practice, where an opportunity is not given for careful control as in the clinic, observation of the pulse rhythm has convinced me that the uncontrolled administration of digitalis, particularly if the case lasts for several days, that is, a week or more, often is followed by the development of an arrhythmia where the pulse was previously regular. This is usually looked upon as evidence of a diseased myocardium, but I am inclined to attribute it more often to excessive digitalis therapy. Hart's statement above would lend support to this view. Digitalis is certainly to be avoided in acute rheumatism and for a long time after the acute stage is passed, and likewise in chronic myocardial infection, fibrosis, etc., and in any case where there is a regularly acting heart with normal auriculoventricular sequence, but with a delay in conduction time, that is, a P-R interval of more than two-tenths of a second. If accurate electrocardiographic or polygraphic studies cannot be secured frequently one may safely adopt the following rule: Suspend digitalis in every case in which a previously regular pulse becomes irregular under its use.

The one condition in which, as we understand it to-day, a delay in conduction time is of benefit, is auricular fibrillation. In this condition the pulse is usually rapid, irregular, and often with short runs of small beats in sequence, and is sometimes spoken of as total arrhythmia, or the pulsis irregularis perpetuus. When not influenced by digitalis it is the rule to find heart rates of 120 to 160 per minute, but this rapid heart rate is usually not associated with the same rapid pulse rate as determined at the radial artery. When simultaneous counts are made at the apex with the stethoscope and by an independent observer palpating the radial artery, there is a deficit in the radial count, and this deficit may amount to 40, 60, or even more beats per minute. It is due to the fact that many of the irregular contractions of the heart are ineffective, and a corresponding wave does not reach the wrist.

If the pulse wave for these ineffective beats is so weak as not to reach the wrist it would seem probable that not only the peripheral circulation but the circulation in the heart wall itself is correspondingly reduced. Many of these patients suffer more or less severely from cardiac decompensation. The symptoms of cardiac decompensation are familiar, but may be briefly stated as dyspnea, orthopnea, persistent cough, râles in dependent portions of the lungs, enlarged, tender liver, sometimes pulsating, cyanosis, cold extremities, edema, sometimes with ascites and pleural transudates, and in many instances decreased urinary output with albumin, casts, and often with red-blood cells in the urine.

The administration of proper doses of digitalis in cases of auricular fibrillation results in an interference with conduction through the bundle of His, just as it does in normally acting hearts, but with this difference, that in this condition an interference with conduction is desirable. If the ventricular rate is rapid, that is, from 120 to 160 per minute, as the case may be, proper doses usually result in reduction of ventricular rate to 70, 80, or 90 beats per minute, and by pushing the administration of digitalis the rate may be brought even much lower, to 50 or 60 per minute, the pulse remaining, however, irregular. Complete block may be induced with regular rates of 30 to 40. When the rate falls below 90 per minute the deficit is more or less diminished, and with rates around 70 or 80 per minute it is common to find that the rate at the apex and the rate at the radial are practically identical. In other words, the deficit has disappeared, the ineffective contractions have been done away with, and each ventricular impulse results in a wave in the radial artery suggesting effective systolic output. In the majority of instances, although the rate is reduced, the pulse, both at the apex and at the radial, is still irregular, but it will usually be noted that the small runs, of 2, 3, 4, and even more small beats close together, have disappeared. Many writers speak of this as diminution in irregularity. I do not like this designation, for it should be borne in mind that the pulse is still an irregular one so long as auricular fibrillation persists and there is any conduction of impulses from auricle to ventricle. There is no dominant rhythm whatever, and the pulse is still that of total arrythmia. Strangely enough, in some instances the pulse, although irregular, has become so nearly regular that an inexperienced observer using the stethescope at the apex or palapating the radial would be readily misled. Graphic records alone will establish the fact that the pulse is still irregular. It is necessary to emphasize this fact. When complete block has been induced in the presence of auricular fibrillation a slow idioventricular rhythm may develop. This is regular but usually below 40 per minute. We have records in one instance in which a normal auriculoventricular sequence with regular pulse was established after five months of fibrillation, continuous so far as our observation could establish it. This patient was in our wards throughout this entire period. The establishment of normal auricular contractions after long periods of fibrillation is not the rule: it is definitely the exception. There is a group of cases of transient or paroxysmal auricular fibrillation, but in these the paroxysm of fibrillation lasts only a few seconds, minutes, hours, or days. We have seen them last as long as two days and then give way to the normal mechanism.

In the majority of instances with the diminution of the heart rate and the disappearance of deficit, if the pulse rate, although still irregular, approaches 70 beats per minute there is a definite clinical improvement. The phenomena of decompensation subside, and in many instances remarkable changes may be secured in a few hours. This does not occur in all. I am inclined to separate the causes of decompensation in auricular fibrillation into two; first, that due soley and entirely to the rapid irregular ventricular rate; and second, that due to deficiency in contractile power of the ventricular musculature. This classification helps in the recognition of that group of cases in which muscular power is lessened. With the disappearance of the rapid rate and the ineffectual contractions in hearts whose musculature is still good, we have a marked subsidence of symptoms of decompensation, while in patients whose musculature is inefficient we shall have much decompensation left. It would be logical to suppose that a heart wall insufficiently nourished because of poor coronary circulation and with the muscle exhausted by frequent and ineffectual contraction would not have the power of one receiving a proper supply of blood and with normal or nearly normal rest between beats To maintain the normal ventricular rate and to eliminate over a long period of time exhausting and ineffective ventricular contractions should allow a gradual improvement in the nutritional as well as functional conditions in the ventricular wall.

The problem is to learn how most promptly to secure the desired effects and how to maintain them when once secured. The steps by which conclusions as to the method of administration of digitalis have been arrived at are well known, and therefore, I shall outline, as briefly as possible, the procedure used in our own work in the University Hospital Clinic and in private practice.

Given a patient with decompensation, with rapid, irregular rate, due to auricular fibrillation, in whom no digitalis or its relatives has been used for a month, we immediately advise the use of digitalis by the Eggleston method. A standardized digitalis preparation is used, one of a cat unit strength of 65 to 70. The Eggleston dose for such a preparation is 0.145 c.c. of the tincture per pound of the body weight. If the patient has anasarca, ascites, or pleural transudates, a rough estimate is made of the amount of fluid excess in the tissues, and this is deducted from the total weight. As an illustration, it may be estimated that a patient weighing 155 pounds has 15 pounds of excess fluid. The weight for calculation of Eggleston dosage then would be 140 pounds. Multiplying this weight by .145 gives us a dosage of 20.3 c.c. of tincture. Suppose, for convenience, the Eggleston dose to be 20 c.c. This amount is to be administered in four doses six hours apart. The first dose is 10 c.c., the second, 5 c.c., the third, 2.5 c.c., and the fourth, 2.5 c.c. We now have given an amount within eighteen hours shown by clinical experience to be effective in the great majority of instances. Comparing this dosage with the lethal dose in animals we find that it is about 45 per cent of the lethal dose. If the amount is to be effective a definite slowing of ventricular rate will already have been seen by the time the last dose is given or at least within twenty-four hours after the first dose. We have seen no advantage in the method used by Robinson in which the entire amount is given in a single dose, and careful watching during the period of the administration will occasionally show the desired results before the entire amount is given. In such instances further administration can be withheld at least for a time. The method of Eggleston seems to be safer in this respect than that of Robinson. The occurrence of nausea and vomiting during the period of administration is also an indication for suspending administration for a time. If the desired results are not secured and if the patient does not show nausea or vomiting as a result of the drug, additional doses are given at six-hour intervals, about 1 c.c. each dose; and these are continued until slowing of the pulse to 70 or 80 beats per minute is secured, but discontinued at any time if evidences of toxic and undesirable effects appear. The drug is given until definite effects are secured and then suspended at least for a time. Before beginning administration, inquiry may develop the fact that the patient has been taking digitalis, or electrocardiographic tracings may give a T-wave outline suggestive of a digitalis effect, but the patient may not be getting the full effects of the drug. Under these circumstances a consideration of the evidence will lead to a decision as to what portion of the so-called Eggleston dosage should be used. We often order a half Eggleston or a three-quarter Eggleston dose, suspending the drug as soon as the desired effects have been secured. When there are definite evidences of full desired digitalis effects we speak of the heart as digitalized. It is now desired to maintain the heart in this condition of digitalization. To do this it is necessary to know that digitalis is excreted at a certain and probably fairly definite rate, and that when full digitalis effects have once been secured some evidences of persisting action of the drug are present for a period from one to two weeks and occasionally even somewhat more.

Pardee gives the average rate of disappearance from the body as twenty-two minims of the tincture per day. The average duration of demonstrable digitalis effects after digitalization is from ten to fourteen days. It is desirable after the heart has been digitalized to continue careful pulse and apex records, and as soon as the ven- begin again the administration of the drug. The dosage to be given now is such as will maintain, when continued, the right degree of digitalization. Usually 1 c.c. given two or three times per day (all depending on the weight and tolerance of the individual) will maintain a favorable digitalis effect. With this dosage short periods of abstinence from the drug are advisable, as outlined below.

It is necessary to watch daily for unfavorable effects, that is, signs of overdosage. Principal among these are (1) nausea and vomiting, (2) slowing of pulse below 60 per minute, (3) evidences of partial or complete block, and (4) the development of paired beats. This development of paired beats is an expression of increased excitability in the ventricular musculature. It is quite characteristic and is due to the presence of an extrasystole following each normal beat. Lewis states that it is characteristic of excessive action of digitalis in auricular fibrillation, and its presence has led to the recognition in a number of instances of overdosage. An additional warning of the approach of unfavorable effects, but one which can be found only in cases with normal auricular and ventricular sequence, and discovered by electrocardiographic or polygraphic tracings, is increase in conduction time between auricles and ventricles. This is shown in the electrocardiogram by increased P-R interval. It precedes the appearance of partial or complete block. It is naturally not the evidence of digitalis effect found in auricular fibrillation, the subject under immediate discussion.

The occurrence of any of the above events is a signal for suspending the drug. If careful attention has been paid to the patient, with frequent daily observations made of the apex and radial rate, it is seldom that any of these events will occur, for a slowing beyond 70 beats per minute usually appears in auricular fibrillation before unfavorable effects are seen. As a routine practice we believe it advisable to administer digitalis in chronic auricular fibrillation for a period of ten days to two weeks and then suspend for a week, recording the apical and pulse rate daily, if possible, and at least several times over a period of one day at the end of each period of administration and at the end of each period of suspension. By these periodic observations one can learn whether too much or too little digitalis is given and eventually arrive, often quite promptly, at an estimate of the exact amounts necessary to keep the patient properly digitalized. The steady improvement of many patients under this effective digitalization is remarkable, and it seems evident that the improved circulation in a ventricle whose rate is kept within a normal figure for a considerable length of time, is an important factor in allowing regenerative changes in the ventricular musculature. Certainly, these patients are often able to do more and more in the way of graduated exercise, and many of them even carry on light occupations without apparent deleterious effects. Colonel Bogey may have been a golfer. I have one patient with auricular fibrillation whose average score is not much below Colonel Bogey's. Nothing has so far been said concerning cases of auricular fibrillation with slow pulse in which no digitalis has been given. Digitalis does not have so great an effect in these cases, although we have seen definite improvement. Possibly improved circulation allows regenerative process in the ventricular wall.

The indications for digitalis in myocarditis are governed by the character of mechanism. If auricular fibrillation is present, digitalis acts, as a rule, in the same manner as in other fibrillating cases. It is well known that to find histologic changes is the rule in fibrillation under any circumstances, in mitral stenosis, and in other valve lesions, as well as in non-valvular cases. If the auricles are not fibrillating, if digitalis is to be used at all it must be used with great care, and frequent study must be made for evidences of conduction defects. Lesions in the myocardium may or may not give evidence of their presence by such conduction defects. If such evidences are present we believe the drug to be contraindicated.

The effect of digitalis on excitability of the ventricular musculature, has been long established. So far as the use of digitalis in cases showing auricular or ventricular extrasystoles is concerned, this depends entirely on other conditions present in the heart and not on the presence of the extrasystoles. Extra systole does not provide an indication, but, rather, to the contrary, although we have been able to demonstrate but little effect upon the frequency of occurrence of extrasystoles, except with full doses, when they may appear or may be increased in frequency. When marked slowing of rate is secured we expect them to occur more frequently, and increase in the excitability of the ventricles develops under digitalis in the absence of auricular fibrillation, as it does in its presence.

RECAPITULATION

1. Electrocardiographic phenomena in anesthetized cats show that the effects of digitalis, when studied by this method, are similar to those in man. There is a wide variability in the time of appearance of these phenomena in different animals, but, in general, changes in conduction time between auricles and ventricles is one of the principal effects secured. Next to this stands increase in excitability of the ventricular musculature with occurrence of ventricular extrasystoles.

2. In man there is one condition, that is, auricular fibrillation, in which digitalis therapy is definitely indicated. In auricular fibrillation with decompensation and rapid rate, digitalis is to be used boldly, the Eggelston method is effective in the majority of instances within a few hours, and is preferable to the method of giving the same amount in a single dose, or administered in small, so-called tonic, doses.

3. In decompensation with auricular fibrillation some patients will show the major portion of the decompensation to be due to the rapid irregular rate, and when this is modified, that is, the rate reduced to approximately normal figures, the greater portion of decompensation disappears, together with the symptoms, often with astonishing rapidity. In other patients a considerable residuum of decompensation will be left. It would appear that this gives an index of myocardial deficiency, and the study of the degree of decompensation remaining after full digitalis effects on the heart rate gives a valuable estimate of the degree of this deficiency. Cases of chronic auricular fibrillation may be kept under the effect of digitalis over long periods of time, often with increasing myocardial efficiency up to a certain point, due probably to improved circulation with regenerative changes in the myocardium. In paroxysmal auricular fibrillation and in auricular flutter, the effects are prompt and striking, as a rule.

4. In acute decompensation without auricular fibrillation digitalis sometimes will produce results, but no such effects are to be expected as in fibrillation. In conditions other than auricular fibrillation, especially if there is myocarditis in any form, the drug is to be used with extreme caution. The intelligent use of this vegetable scalpel requires careful, painstaking study of the progress in each case with particular watchfulness for the development of signs of delay in conduction from auricles to ventricles.

5. The question whether digitalis actually increases heart tone in therapeutic doses in man requires further study. Our clinical impressions are not sufficient to elucidate this, and in the presence of facts which make digitalis therapy of very limited application, careful graphic study of this question would appear to be the most important one in the drug therapy of heart disease to-day.

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DISCUSSION

Dr. F. I. Darrow (Fargo): I hardly fell qualified to discuss a good many of the points brought out in this paper, particularly in relation to Dr. White's observation in connection with the electrocardiograph. with which I have had very little experience. But I do think it is up to us who do not have the advantage of these instruments and cannot make studies with them directly, to pay attention to the reports of those who have made these studies, because we can gain a great deal of valuable information by watching their results. However, most of us will have to administer digitalis without this check on its use.

I heartily agree with Dr. White in his statement that he would advise against the use of digitalis, particularly in large doses, in pneumonia. Also I believe that if the total amount of digitalis given were divided in a little different way we would secure a much better result in digitalis therapy. A great deal of digitalis is given without any effect whatsoever and in cases where it is inadvisedly used. If we would take this extra amount of digitalis and put it on to the doses that need it, we would get the resuts sought. The doctor did not finish reading his paper therefore I do not know whether or not he went into the subject of massive doses of digitalis. I have had a little experience with this treatment of failing heart cases, particularly auricular fibrillation. In the Clinic of Dr. Canby Robinson we used the cat method of standardization and gave digitalis according to the body weight of the patient, and I was astounded to find that we could give doses as high as an ounce of digitalis without killing people, and, in fact, securing very good results. The unit used was the amount of powdered leaves of digitalis, in milligrams, required to kill a kilogram of cat when injected slowly intravenously. The average dose required in man is 0.15 cc. of the tincture per pound of body weight. One-half the calculated dose is given and six hours later if there is no untoward effect, one-fourth is given and again in six hours the final fourth is given. I have never seen a case where the calculated dose appeared to be too large.

Dr. E. L. Tuohy (Duluth, Minn.): The essayist has given much credit to the Northwest and particularly to Minnesota for work in establishing the principles of the uses of digitalis. And here let me say that Dr. White is now recognized as an authority in this work.

In considering this subject it is important for us to emphasize many practical points. As stated yesterday by Dr. White's associate, Dr. Hansen, in a very valuable discussion of the use of the electrocardiograph, this instrument has added greatly to our clinical knowledge and also to our ways and means of determining clinical symptoms. But it is not always necessary that we should have this device at our disposal in the guidance of patients. From a practical point of view I have come to rely on certain symptoms to indicate Digitalis toxicity. In the order of their importance I will give, first, the slowing of pulse and the tendency to nausea; second, " coupling" of the beats. When you have arrived at the point of "coupling" of the beats you are coming near the point of conduction interference. The toxicity for animals varies within such wide limits that we must conclude that the toxicity for humans varies probably equally so, giving a sense of discomfort with which we must conjure. Particularly does this mean that there is great danger in exhibiting digitalis in large amounts and sending the patient away on his own judgment and behavior. Therefore we should remember that the prime field for use of digitalis is in auricular fibrillation, and the patient should be under observation while we are arriving at the knowledge of the amount of digitalis needed in that particular case to maintain proper function. We remember also that auricular fibrillation occurring under 40 is practically always due to mitral disease, and here we are fairly safe in adopting massive doses. We personally have abandoned the full Eggleston dose, because it is not necessary. Modification thereof is just as reasonable and logical as to give the huge dose at one time—the principle is the same. In cases over 40, and particularly where the mycardium comes into question as to its integrity, we must certainly play safe. The electrocardiograph tells us something about the use of digitalis, but not all. It does not explain why many patients with heart block or with a strong tendency towards that complex, are better when they take some digitalis, and in these conditions our clinical experience is worth while. This is one place where moderate, continuous doses of digitalis seem to be indicated. I call your attention to the fact that the digitalis now being grown and standardized at St. Paul is extremely valuable. As you know, it is put out in capsule in the powder form, and also as the tincture. While the massive dose of the powder seems an easy way to arrive at a full digitalization, many patients will come to their toxic signs from the nausea point of view much earlier with that form of the drug than with the tincture. Therefore in judging how the patient will take digitalis we must go back and to a large extent rely on our every day clinical knowledge, because some patients will take massive doses much better than others.

Dr. White (closing): I am very glad that Dr. Tuohy has taken the opportunity to emphasize the value of clinical study of this group without the electrocardiograph. It is one of the things I try to teach my students in the study of the heart. The electrocardiograph has illuminated the subject of the mechanism of the heartbeat and has revealed much concerning disorders of this mechanism. Clinical study without the electrocardiograph can tell us much that we can understand now which was formerly not understood. The use of the electrocardiograph is necessary, however, in the modern study of the heart.

One of the points that I have stressed in the conclusion of the paper is that digitalis is a drug to be given with care. It has profound effects—it is a vegetable scalpel, if you wish to call it such. It has results which can be guided almost as accurately as can those obtained by the use of the knife. The administration of digitalis requires careful study, and no patient should be given the drug to go away and take it indiscriminately or indefinitely; and in no case should the drug be given unless the physician is willing to make observations daily or even oftener. I am referring particularly to its use in acute decompensation. In the chronic case one can learn, by observation over a considerable period, just how much of the drug the patient needs, and the patient himself will finally learn to gauge quite accurately the dosage and results. I am now treating several cases of chronic auricular fibrillation in which the disorder of mechanism persists and will persist during life,—one of fourteen, one of six, and a number of five years' duration,—in which fairly good compensation has been secured even in spite of the irregular pulse. The heart-rate, not the radial rate, is to be kept within 70 to 80 beats per minute. At this rate the majority, if not all, of the rapid ineffective contractions of the heart are done away with, and the needed, though brief, rest periods for the heart muscle are secured.

There is one other point I wish to emphasize: With the use of a standardized drug from which you can get prompt effects, there is opportunity to learn quite promptly in a decompensated case with auricular fibrillation whether you are dealing with a condition in which the myocardial degeneration is a considerable factor. In many cases of irregular and rapid heart, we will bring about a state of improved compensation within twenty-four to fourty-eight hours

After observation of a large group of cases over a number of years, I have come to the conclusion that these are cases in which the rapid irregular rate, due to the auricular fibrillation, is the greatest factor in the decompensation, whereas some other cases, apparently similar in every respect when first seen, will remain about as before following the administration of digitalis in the full Eggleston dose. In the former cases there is evidence that the muscle as muscle, is in relatively good condition and that the disturbed rhythm and high rate were causing the greater part of the decompensation. In the latter cases,—that is, those in which the degree of decompensation is but little changed after full digitalis effects on rate have been secured,—it would appear that the heart-muscle has lost much of its power through degenerative changes. The subsequent history of this group shows a much poorer outlook.

THE DIAGNOSIS OF SIMPLE PEPTIC ULCER*

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Peptic ulcer is one of the most common of all the gastro-intestinal diseases, occurring in from 5 to 6 per cent of all patients presenting themselves for medical treatment.

The cause of an ulcer is not definitely known. Virchow and others believed it to be the result of an embolic process. The great drawback to this idea has been that no known etiological factor in many cases could be found to explain the emboli, until Rosenow's work brought out the idea of metastatic hematogenous infection, secondary to some focus, chiefly tonsils, teeth, sinuses, appendix, or gall-bladder.

Simple acute ulcers, but not the chronic types, have been produced by experiments. With the chronic types, the probably most accepted idea is that we are dealing with some condition which produces a nutritional change, with resulting diminished resistance of the mucous membrane, followed by either necrosis or corrosion of a limited area of the mucous membrane, the hydrochloric acid tending to delay or prevent healing. This is probably the only reason why a peptic ulcer heals differently from any other kind of ulcer, and why an ulcer may occur in an anacidity.

In making a diagnosis of an ulcer, the most important factor to consider is the history. The patient complains of a pain which may begin gradually as a full weight, burning, gnawing sensation, and may increase till it becomes painful, appearing in from a half to two to three hours after meals, or from 12:00 to 3:00 A. M., depending upon the age of the ulcer, its location, types of food eaten, and as to whether or not any complications are present.

The pain usually is located in the mid-epigastrium. It rarely radiates, but may be felt through and through to the back between the eighth and the twelfth dorsal vertebræ. It occurs constantly or in remissions of from a few days to weeks. It is temporarily relieved at once by taking foods, by an alkali in sufficient quantities, and by vomiting.

Another symptom is belching, occurring from one to three hours after meals, with the distress.

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A sour material or gas may be belched into the throat and may give a burning sensation,—the so-called water brash. Nausea, headache, and vertigo may occur with the distress. The appetite is usually good, but in some cases the patient fears to eat because of the discomfort which may follow.

Vomiting occurs in about a third of the cases at the time of the distress. When there are no complications the vomitus is small in amount, and the vomiting gives instant relief. Blood is found in the vomitus of about a fourth of the cases. If an obstruction is present, the patient will vomit quantities of foods eaten at some previous time.

On physical examination a tender point is usually found in the epigastrium, depending on the site of the ulcer for its localization. In a small percentage of the patients a tender point is located between the eighth and twelfth dorsal vertebræ, usually with some right rectus rigidity.

If the ulcer is old, with considerable scar tissue about the ulcer area, a mass may be palpated.

The stomach contents following the usual Ewald meal will show in the uncomplicated ulcers much less than 100 c.c. of material. The division is fine, and in the gastric ulcers about 50 per cent of the total amount is solid. In duodenal ulcers we have found the solid contents to be about a third of the total amount. The division of the contents is finer than in gastric ulcer. The upper layers of the solid material become finer and finer until the top layers gradually fuse into the liquid. The color of the fluid in the duodenal ulcer more often has a greenish tint. This rarely gives a bile reaction. We interpret these findings in duodenal ulcer to be due to a spasm at the outlet, holding and grinding the contents so to speak, into a finer state of subdivision. In our hands this type of stomach contents has been of diagnostic aid.

In most of the acute ulcers, we have found the acidity to be increased; while in the old chronic types the acidity is normal in probably more than 50 per cent of the cases, following a simple Ewald meal. At the time of pain we have found the acidity to be higher. Microscopically, there may be a few red blood cells with food particles, rarely any white blood cells. The stools will occasionally give an occult blood reaction, the blood showing a slight secondary type of anemia. The blood chemistry is normal; the urine, negative.

The positive *x*-ray findings in gastric ulcer are the following: filling defects, niche or partial perforations and incisura, or a spastic or organic hour-glass contraction. In duodenal ulcer the direct finding is a filling defect with spasm; the indirect, a hyperperistalsis retention, and hypersecretion. Before a positive diagnosis can be made the following conditions should be differentiated:

1. *Gall-bladder Infections and Stones.*—The patient gives a history of attacks of discomfort, which vary from a weight or pressure sensation, to acute severe pain appearing gradually or suddenly deep in the right upper quadrant of the abdomen. The pain usually radiates to the back or shoulders; breathing and body movements aggravate it; and fever, chills, or sweating may be present. Jaundice occurs in about 10 per cent of the cases. Nausea, vomiting, and belching may occur, but do not relieve the distress, as in ulcer. A tenderness is present along the right costal border. Rigidity of the upper right rectus muscle is present. Hammer percussion over the right groin and deep along the right costal border causes increased pain. If a pericholecystitis is present a friction rub may be palpated or heard over the gall-bladder area. A Meltzer-Lyon procedure may show, grossly or microscopically, some evidence of pathology, or may aggravate the pain. The *x*-ray may be of the greatest help in showing stones or an enlarged gall-bladder, or where the stomach is pulled to the right by adhesions with a horizontal position and a bisecting peristalsis. A pneumoperitoneum with *x*-ray study may be of value. Gall-badder conditions, chiefly stones, are commonly diagnosed as acute indigestion. There will be negative ulcer findings.

2. *Syphilis.*—The next condition to be differentiated is syphilis, involving the central nervous system, the gastric crisis of tabes. The patient complains of attacks of pain which are localized deep in the epigastrium, and are often associated with vomiting. The vomiting does not modify the pain. The pain and vomiting have no relation to meals, as in ulcer. There is usually a history of difficulty in gait, passing urine, or pains in other parts of the body. On examination the findings are typical for tabes and negative for ulcer, or locally as a gumma of the stomach. The stomach distress usually appears shortly after eating, without food relief, as in ulcer. Hydrochloric acid may or may not be found. If no obstruction is present there is usually no vomiting. The diagnosis is made

chiefly by exclusion. A positive Wassermann is found, the *x*-ray shows a mass in the stomach wall, usually in a young person without cachexia. The stools do not contain blood. The mass in the stomach and symptoms disappear under antiluetic management.

3. *Tuberculosis.*—Another condition often mistaken for ulcer is tuberculosis. For here, too, very often we have an abdominal distress localized in the epigastrium without any other positive ulcer findings, but with positive tuberculous clinical and *x*-ray findings.

4. *Gastritis.*—And another condition frequently mistaken for ulcer is gastritis. This may be confused because of the distress or vomiting, but, unlike ulcer, there is a history of some indiscretion of diet or disease to explain the symptoms. The distress appears shortly after eating. It is not relieved by food or vomiting. There will be mucus with white blood cells present in the gastric secretion. The ulcer findings are negative. This is a relatively rare disease and rather difficult to diagnose.

Other conditions to be differentiated are the following: appendicitis, kidney, pancreas, and intestinal, heart, and aortic disturbances.

Dr. Sippy has shown that the following points should be present, without incompatibilities, before a positive ulcer diagnosis can be made:

1. History of distress as given above.
2. Relieved by food in sufficient quantities.
3. Relieved by vomiting.
4. Relieved by alkali in sufficient quantities.
5. During the time of the pain the hydrochloric acid is increased over the acidity following a simple Ewald meal.

With the above data, and feeling certain that an ulcer is present, we should find its probable age, location, and whether or not any of the following complications are present:

1. A continued secretion, found very frequently accompanying ulcers situated at or near the pylorus. We find the usual history of an ulcer with night distress. On aspiration, seventy-five to several hundred cubic centimeters of a clear or greenish-colored fluid are found, with a variable acidity.

2. Perigastritis. The patient having a typical ulcer history in which recently he has a constant pain, which is increased three to four hours after meals. A local tenderness is present, and perhaps a slight temperature, with an increased white-blood count and rigidity. Breathing aggravates the distress.

3. Perigastritis with adhesions. The patient has the usual ulcer history with perigastritis. The discomfort is aggravated at once by distending the stomach with food or gas. These symptoms persist even after the ulcer symptoms have subsided. The adhesions are rarely present sufficiently to cause symptoms.

4. Perigastritis with abscess. The patient has the usual ulcer history with perigastritis and continued fever. The white blood cells are increased, the rigidity is greater, and breathing and body movements aggravate it. Tetany may be present. The patient is toxic, and hammer percussion over the loin aggravates the pain. It is difficult for the patient to stand erect. Some of the liver dullness may be obliterated, due, to some extent, to pneumoperitoneum.

5. Hemorrhage occurs in about 6 per cent of ulcers. It is usual to obtain a history of food distress. The patient feels faint, weak, or restless, is dizzy, pale, and sweats. There may be nausea and vomiting. The pulse is usually rapid and weak. There may be a full feeling in the abdomen. The pupils usually dilate. The blood pressure, if taken, is low, and the hemaglobin diminishing. Later, blood may appear in the stools. If the patient vomits or if the stomach is aspirated, blood may be found. Hemorrhage causes 20 per cent of the deaths from ulcer.

6. Perforation occurs in about 5 to 6 per cent of ulcers. In 20 per cent of the cases, it is multiple. It appears as a sudden, hard, sharp, severe, constant, agonizing pain in the epigastrium. It increases in severity with time, and is aggravated every three to five minutes by peristalsis. Early the abdomen is usually flat, with a board-like rigidity. Later the abdomen is distended. Acute tenderness is present, well localized in the epigastrium over the perforation. The skin is hyperesthetic. The patient is usually lying down with the knees drawn toward the chin or doubled up. Early there is a slight tympany over the liver, which increases with the abdominal distension. If the perforation occurs when the stomach is full, a shifting dullness will be found in the flanks. Early there is no increase of temperature, and there is no white blood cell increase. These occur later with the onset of an infectious peritonitis. The patient gives a good history of ulcer. Seventy per cent of the perforations occur on the anterior wall, 21 per cent along the lesser curvature, and 9 per cent on the posterior wall. Perforation causes 50 per cent or more of the deaths from ulcer.

7. Carcinoma is rare in duodenal ulcer. Twenty-four cases were reported by Judd from the Mayo Clinic up to 1918. Opinions differ from 10 to 98 per cent as to the frequency of carcinoma following gastric ulcer. Ewing believes that cancerous degeneration of a peptic ulcer rarely, if ever, occurs. Cole states that it is found in less than 10 per cent of the ulcers. The patient may give a history of a discomfort occurring two to three hours after meals, with the usual relief. This changes to a constant dull pain, which cannot be relieved or in which the former usual methods of relief are delayed or are ineffective. The stools will contain blood in nearly every specimen. Early, hydrochloric acid may be present. Later, hydrochloric acid is absent. If an obstruction is present waves may be seen. Without hydrochloric acid, pathologically lactic acid and large numbers of baccili may be found. The Wolf or Junghans test may be positive. The blood does not show a hyperclycemia. Late in the disease a mass in the epigastrium or metastasis, chiefly rectal, may be palpable. The *x*-ray may show any of the carcinoma findings, and is especially valuable for localization.

8. Deformities. In the hour-glass deformity the patient gives the usual ulcer history, but feels full very soon after eating. A very small amount is recovered following a simple test-meal. By putting a definite amount of fluid into the stomach by a tube, one is able to obtain, by aspirating, a smaller amount than was placed in the stomach. After distending the stomach with CO_2 gas, an irregular border may be percussed, and outlined. The *x*-ray confirms the above. A saddle ulcer along the lesser curvature causes the above. In multiple ulcers there may be multiple pockets.

9. Benign obstruction outside of tuberculosis and lues may be due to spasm, inflammatory exudate, and scars. A large percentage of duodenal ulcers give some obstruction. The history of an ulcer, with exudate or spasm, causing obstruction, is rather short and stormy. In patients with relaxed abdominal walls the pylorus may be palpated. Following a seven-hour motor meal, there will be a retention of food, depending upon the degree of stenosis, from a hundred to several thousands cubic centimeters. Sarcinæ will be present with hydrochloric acid. There will be a marked yeasty odor to the stomach contents. Vomiting may be present. For a scar an old history of an ulcer is obtained with no recently acute symptoms, and still the obstruction is high grade. Here the fractional method with the tube is of value, particularly in low acidities, where a carcinoma may be suspected. The *x*-ray confirms the obstruction. The spasm and exudate obstructions relax in from ten to fourteen days under proper care. The scar obstructions relax little, if any, in this short time.

To summarize, the diagnosis of stomach pathology is made by:—

1. A carefully taken history.
2. Laboratory findings.
3. A thorough *x*-ray gastro-intestinal study.
4. A complete physical examination.
5. A careful consideration of the differential diagnosis.

In concluding, I should like to say that, when a patient is placed under ulcer management and the symptoms are not entirely relieved within one to two days, something is wrong. Either:—

1. The diagnosis is incorrect.
2. Complications are present.
3. The management is faulty.

DISCUSSION

Dr. H. H. Bodenstab (Bismarck): The picture of ulcer is varied, depending on its location. If ulcer is located in the stomach, we know that pain and distress come sooner than in case of duodenal ulcer.

I think we are all agreed that the first and main requisite in the diagnosis of ulcer is the clinical history. A great deal of needless suffering could be prevented if we were more careful in the taking of our histories. We are constantly confronted with the diagnosis of indigestion, dyspepsia, gastralgia, etc., and I do not hesitate to say that I feel that most of these terms should have no place in clinical medicine. When there is distress or pain in the stomach which comes on after eating and which conforms to the clinical history of ulcer, we should not be satisfied to make a diagnosis of simple indigestion or dyspepsia. Yet it is the experience of all of us that patients come in and tell us that they saw Dr. So-and-so, who told them that they had an attack of acute indigestion, acute dyspepsia, gastralgia, or something else. I think if we forget those terms as entities, but use them as symptoms only we shall be away ahead so far as the diagnostic features are concerned.

I find that by following intelligent history-taking, with careful observation of the patient for the purpose of determining whether or not the history is correct, and whether the distress appears and disappears in conformity with the history of ulcer, we shall get somewhere.

Dr. Rizer did not mention the string test and the duodenal tube. I am rather pleased that he did not refer to the former, because my experience with it, although not very extensive, is that it has not been at all satisfactory. In using the string test I have tried pulling it up in twelve hours, when it was found to be stained with bile all along its lower end, but we were not able to determine any blood-mark on the string.

Then, too, we all know that the bleeding of ulcer is periodical. We do not have constant bleeding, and this is one of the differential diagnosis points between ulcer and cancer. If we have occult blood in the stool constantly we are inclined to believe that the condition is cancer. If it is periodical, ulcer is suggested.

I have more faith in the duodenal tube. The finding of occult blood in the stomach contents is questionable, because in between 25 and 30 per cent of cases in which the stomach contents are taken out with the ordinary stomach tube traumatic blood is found. That has been my experience. By the use of the duodenal tube, trauma of the mucous membrane is eliminated and the presence of blood is of more diagnostic importance.

Dr. W. W. Wood (Jamestown): I have been more or less interested in the *x*-ray as furnishing affirmative evidence of duodenal ulcer, and was very much interested in two or three of Dr. Rizer's slides which showed very small ulcers. As the Doctor said, if plates had not been made and fluoroscopy only had been used, these would certainly have been missed, and I think that this point, as corroborative evidence furnished by the *x*-ray, should be emphasized. Some time ago while away on a trip I made it a point to discuss this question with a number of men who were doing *x*-ray work, and I found that quite a few did not resort to much plate work. They used a good deal of fluoroscopy and perhaps one or two plates. But unless one takes a series of plates until a full definite outline is obtained, either normal or pathological, I believe that one is not absolutely sure of the absence of pathology.

Dr. R. C. Coffey (Portland, Ore.): I am sure we all have enjoyed and appreciated Dr. Rizer's discussion of the symptoms and diagnosis points of this condition. As a rule, what the busy practitioner wants is a summing up of the things which Dr. Rizer has given us,—the high lights on the subject. Most of us come here as general men, each of whom is busy with his cases all day long and who does not have the necessary equipment to apply these extensive and complicated tests. One may diagnose a very large percentage of these cases by just a few high lights.

Remember, first, that the most important symptom of an ulcer is pain. Therefore, in the absence of pain, in the great majority of cases, you can completely eliminate the question of ulcer. In duodenal ulcer, 75 to 95 per cent of all cases have pain; and 75 per cent of all ulcers are duodenal. In duodenal ulcer the pain comes on two to four hours after meals, and is relieved, as Dr. Rizer has said, by the taking of food, by alkalies, or by emptying the stomach. Pain of this type comes on intermittently, at first about once a year and usually at the time of year when colds and head infections take place. Gradually these attacks increase in number, and the history extends over a period of years. These periodic attacks at first last for a few days or weeks, gradually increasing in length and severity. Just that part of the history alone will, if wisely interpreted, enable one to diagnose probably 75 per cent of ulcers. I have a nurse who will diagnose 75 per cent of cases of duodenal ulcer simply from the history.

Then the question of acidity comes up. I believe Smithies has recently reported some 50 cases of ulcer in which there was no acidity. Some years ago Eusterman reported several cases of ulcer with achylia from the Mayo Clinic. Later reports were to the effect that six of these had died of cancer of the stomach, and all the rest showed positive Wassermanns. I have never seen a case of ulcer of the stomach in which there was lack of free hydrochloric acid. If there is such lack one can suspect cancer or syphilitic ulcer.

The *x*-ray, of course, is most important and reliable of all. By taking the history, such as Moynihan has described, and adding to it the *x*-ray findings by an experienced man of good judgment and who knows the pathology of ulcer, you will, I believe, be able to make the diagnosis on these points in at least 95 per cent of cases. The *x*-ray is the final test. Some internists like to discredit the value of *x*-ray findings. By so doing a much larger percentage of medical cures are obtained. The *x*-ray is a great revealer of truth in connection with ulcer.

I believe that the screen is more important than the plates unless a large number of serial plates are made. Some of the worst mistakes I know of have been made because of the taking of single plates. In these cases a doctor who can make accurate diagnosis of fracture may say, "There is the ulcer," when as a matter of fact one does not know whether it is an ulcer or not unless he has studied repeated plates. A single plate is absolutely valueless unless the difficulty is due to organic obstruction. There must be a series of plates. The fluoroscopic screen shows a great many phases of the stomach, and is much more important than the plates unless you do as Cole has done, make forty to fifty plates.

MODERN HOSPITAL PROBLEMS

By Richard Olding Beard, M.D.
UNIVERSITY OF MINNESOTA

The development of hospitals in America has been relatively rapid within the past generation. The fact is significant of the public's growing appreciation of the hospital, devoted to the business of curing disease and equipped with clinical and nursing staff and with modern conveniences for the comfort and care of the patient, as a good place for the sick. Society is beginning to recognize the super-service of the hospital, not alone in the event of a surgical operation, but in the treatment of disease and in the care of maternity cases. An ever increasing number of babies are being born in hospitals and with a larger measure of safety to mother and child.

The public has learned, too, that the indigent and economically disabled who are sick or injured are cared for with greater efficiency and at lesser cost in the general hospital than anywhere else.

With the rapid multiplication and growth of hospitals it is inevitable, perhaps, that, in the matter of business control, financial support, and proper classification, their development should have been crude. Much confusion still exists in the popular mind as to what hospitals are for, how they should be maintained, whom they should be expected to serve, and how they should function.

Because poverty and sickness so often go hand in hand; because the problem of the indigent sick is a socially imperative one; because charity is still used as a salve, alike for the conscience of the fortunate and the ills of the unfortunate, the hospital, either publicly or privately supported, has come to be regarded as a benefaction. The notion that the endower of a hospital is a doer of good to the poor is a false one. Instead he is a philanthropist devoting a share of his wealth to public use, exactly as he does if he endows an art museum, a library, or an industrial institute. The hospital has no place among the charities, if the charities indeed have any place in our present social system.

The deficits of private hospitals, evidences of misdirected energy or of budget mistakes, have commonly been wiped out by subscription or by the proceeds of popular entertainment. The process is equally irritating to those who beg and to those who bestow in such an emergency. The existence of a deficit is significant of bad business methods. The result of recurring deficits is too often a deterioration of hospital standards. Doctors and nurses and patients are exploited, in consequence, as suffering contributors to a near charity.

It is not strange that these past social and economic conditions have led to positive reactions both in the professional and the public mind. Already medical and hospital organizations have undertaken the investigation and the standardization of hospitals throughout the country. It will not be long before this effort succeeds in drawing a definite line between the professionally fit and unfit. There is need also for an economic study of the hospitalization of our communities, large and small; and social and civic bodies are awakening to this need and are enlightening the public thought upon some of these errors of hospital function and operation.

Correct classification, based upon proper relationship to public need, is the first essential of reform. Hospitals should no longer be regarded as dispensers of charity, but rather, so far as the destitute or the financially disabled are concerned, as agencies of social justice. Hospitals, so far as the self-dependent are concerned, are simply hotels for the sick.

The public hospital, whether under city, county, or state control, should be supported by taxation, with the aid of a per diem charge which the temporarily indigent or the narrowly circumstanced may have the opportunity to pay. It is well that the self-respect of the patient should be conserved by this provision. The general or public hospital should take care of all citizens who can not afford to avail themselves of the accommodations offered by the hotel for the sick.

The hotel for the sick, like the hotel for the well, should be conducted on a self-supporting basis as a strictly business enterprise. Its rooms and its rates should be graded. Its nursing service should be both special and general. Its clinical staff should be carefully chosen and organized. It should serve, on occasion, as the clinical base for the group clinic. Its relation to the public is not altered by any question of private or professional ownership, of fraternal or denominational control.

A third type of hospital is to be recognized as of public need and service. It is the teaching hospital attached to a university school of medicine, specifically so attached because it will not be long before all medical schools come, as most of them have come already, under university control.

For the best results in teaching the functions of the public hospital and of the hotel for the sick may be combined in this type of institution. Within its capacity, limited to teaching needs, its model service should be open to all economically conditioned classes of society. Its free beds should be supported by taxation; its more economically capable patients should pay a per diem charge and, if circumstances permit, a professional fee. It should therefore receive a measure of support as an educational asset and a larger measure as a social service enterprise. It may contribute in a degree to its own financing by its collection of suitable charges. Its faculty staff should be paid by the educational institution to which it is attached. Any fees derived from its patients should go to the university.

Just now public attention and interest may well be focussed upon the development of this, the most ideal type of hospital service. It makes jointly for a social, an educational, and a scientific purpose. It is the laboratory of teaching; it is the model asylum for the sick; it is, in the nature of things, the promoter of medical research.

At the present time the hospitals of the University of Minnesota are inadequate to the State's needs. Classes of medical students are limited for lack of sufficient hospital accommodations. The teaching of medicine has been unified in our State institution. The private colleges of the past in Minnesota went out of existence long ago with the understanding that the University would assume the responsibility of their medical teaching task.

It is not fitting that the sons and daughters of Minnesota who are fitly prepared for the study of medicine in the academic colleges of the State, and notably at the University itself, should be denied admission to the University Medical School for want of adequate clinical and laboratory equipment to be had at relatively small cost. If money can be made available, either by appropriation or endowment, this development is at once an educational and scientific end to which it may be most beneficently directed. A million and a half of dollars are needed to give the University of Minnesota a clinical equipment which will supply its teaching needs, will permit it to meet the demand of the State for doctors, and will enable it to keep its place in the front rank of modern institutions of medicine. No better investment for the relief of the sick, for their restoration to economic efficiency, for the training of medical and nursing students, for the promotion of medical science, can be made either by the State or by its private citizens.

CASE-REPORTS PRESENTED BEFORE THE MINNESOTA ACADEMY OF MEDICINE

Meeting of December 14, 1921

DR. H. L. STAPLES, PRESIDING

Dr. A. E. Benjamin reported the following case:

E. T., age 40, male, married, Canadian, traveling man, heavy smoker.

Diagnosis: mediastinal fibroma; multiple adenomata of the thyroid. Family history, negative.

Personal history: Bright's disease and dropsy twenty-one years ago; in bed twenty-eight months. Operation two years ago for pleurisy, no fluid found, severe hemorrhage and nearly bled to death. He was told that the liver was on the wrong side and had been cut into. Noticed heart-beat on the right side and *x*-ray showed stomach on right side also. Neck began to enlarge two years ago following operation. At that time began to have spells, coming on in morning while still in bed, convulsive movements, occasionally unconscious, ending in noisy sleep. Duration thirty minutes to six hours. Interval, two days to one month. Less frequent but more severe of late. No prodromata. Followed by increased dyspnea and gas on stomach and more recently by marked weakness.

Examination: Tonsils somewhat reddened. Adenoma of thyroid larger on right. Superficial veins very large, especially of neck and upper thorax. Heart on right side and apparently normal. Right chest apparently normal. Left chest, no breath sounds except at apex and parasternal and paravertebral near base of left chest. Dullness constant over remainder. Abdomen: increased tympany. External hemorrhoids. Extremities: very marked transitory edema of ankles and legs.

Laboratory: Hgb. 80 per cent. P. S. P. 77 per cent. Blood pressure, 134/90 to 120/80. Basal metabolism, plus 16. Wassermann, negative. Urine: (Sept. 9, 1921) alkaline, 1011, albumin, ++; sugar, 0; pus, few; R. B. C. 50 per H. P. On 11/16/21 it showed alkaline 1014; albumen 0; sugar 0; pus, occasional; R. B. C., few.

Patient admitted to hospital in comatose condition, which had been present the past eighteen hours. Breathing stertorous and labored. Breathing with less effort when lying on left side. Admitted to hospital November 21 and died six hours later.

Pathologist's report (Dr. B. J. Clawson): The body is that of a well-developed poorly-nourished man, 166 cm. in length; estimated weight, 125 pounds. Rigor mortis is present. There is hypostasis posteriorly. No edema. Cyanosis present on face. No jaundice. Pupils are equal and regular. Veins of neck are markedly dilated on both sides. There is an old healed scar about 15 cm. long in the 5th interspace in the anterior axillary line. There is a pigmented area over the left scapula. The right pleural cavity is free from fluid and adhesions. The left cavity is completely obliterated by a white, hard, nodular mass which extends about 5 cm. to the right in the midsternal line. This mass is adherent by dense fibrous adhesions to the parietal pleura and to the old operative wound. It is also firmly attached to the posterior mediastinal tissues. Heart weighs 350 grams. Lies in right pleural cavity. The wall of the right ventricle is thickened. Valves seem normal. The muscle is firm and of a dark-red color. The root of the aorta shows no sclerosis. The left lung weighs 300 grams and shows no crepitation throughout. It is pushed into the apex of the cavity. The right lung weighs 670 grams. It is dark in color, and on section frothy bloody fluid exudes on pressure. Each kidney weighs 200 grams, and both are dark in color. The capsules strip readily, leaving smooth surfaces. The cortical markings are well preserved. The thyroid is markedly enlarged, weighing 250 grams. The enlargement is in both lobes, shows many nodules and on section small cysts containing colloid and blood are found.

The tumor mass weighs 12½ pounds and completely fills the left pleural cavity except a small space at the apex. It is firmly attached to the diaphragm, to the old operative wound, and to the posterior mediastinal tissues. It is hard, roughened and well circumscribed. It measures 27 cm. vertically, 22 cm. transversely, and 12 cm. antero-posteriorly.

Microscopic examination: The tumor is a fibroma, showing extensive hyalinization.

Diagnosis: 1. Mediastinal fibroma. 2. Multiple hemorrhagic adenomata of thyroid with colloid degeneration. 3. Right bronchopneumonia.

Discussion by DR. A. SCHWYZER: Fibromas of the mediastinum are very rare. There had been only 5 or 6 reported at the time last year when I reported a case of fibroma. Observed case for 4 months. Patient did not want operation because pain was not sufficient. Later when pain increased the operation was done. We inflated the lungs and had to split the manubrium to get it out. That operation was done 2 years ago. We fluoroscoped him a while ago and the lung field was entirely clear.

DR. H. L. ULRICH reported two heart cases:

CASE 1. Mr. S., age 53; farmer and dealer in real estate. Complaint, heart trouble. Family history, cardiac trouble.

Personal history: Always a weakling physically; had pneumonia when a child. Denies venereal disease. Has had several attacks of tonsillitis. Has had a maxillary sinus washed out. No previous cardiac history of dyspnea, palpitation, no pain, no cough.

Present illness: Last three years feeling pepless and easily tired out. In May, 1921, had an attack of dizziness. Consulted physician and was told he had a weak heart muscle. In June he had another attack of dizziness on exertion. Had subsequent attacks and determined to lie down. In July he consulted another physician and was told to go to bed. In bed two weeks, when a chiropractor took charge of him, and made matters worse. In September he consulted another physician, who put him to bed for a month. He was then seen by Dr. Geo. D. Head, who advised another month flat on his back. He consulted us the latter part of October. At that time his physical examination elicited the following facts:

Sparse man, with no physical findings except mild pyorrhea, chronic amygdalitis, questionable cholecystitis, and a heart extremely irregular, rapid, not increased in size. No thrills or shock. A soft systolic bruit at the apex following a snappy first sound; along the left of the sternum a diastolic bruit is heard; and at the base a to-and-fro murmur is made out. The blood pressure when the patient was first seen varied; systolic up to 160; diastolic, 80; and sounds at the cuff varied in intensity. All came through at 120. His blood picture, urine, and Wassermann are normal. Lack of enlargement of heart and its rapid irregularity made us suspect auricular flutter or possibly nodal rhythm. The electrocardiograph disclosed the condition.

An electrocardiogram taken on Oct. 29, 1921 showed auricular flutter; auricular rate, 230; and ventricular, 110; also a right-sided preponderance. The degree of functional block varied, giving a complete irregularity, but the majority of complexes showed a 2: 1 block. The vital capacity of the lungs when first seen was 3100 cc. An electrocardiogram taken two days later on admittance to the hospital again showed flutter with the auricular rate 230 and ventricular 80. More of the complexes showed higher grades of block. He received 12 c. c. of tr. digitalis, University of Minnesota leaf, standardized 65 mg. to a cat unit, in twenty-four hours. He left the hospital Dec. 3, 1921, with pulse still irregular but slow. On Dec. 8, an electrocardiogram showed completely different form. The ventricular rate varied between 40 and 50. The majority of complexes showed no definite auricular wave, with rhythm probably arising in the auriculoventricular node. There were occasional series of three or four complexes with well-developed P-waves and varying P-R intervals. On Dec. 15 practically all complexes showed a single P-wave for each ventricular complex with varying P-R intervals. Occasionally the P-wave was absent. Tracings taken weekly during the following three weeks showed a normal cardiogram except for right-sided preponderance, slightly widened Q-R-S, and marked sinus arrhythmia. His vital capacity rose to 3800 cc.

CASE 2. (Dr. Nathanson's case.) Dr. O. A., aged 24, dentist. Complaint of palpitation, depressed feeling.

Family history, negative except his sister died of diabetes.

Personal history: always good; mixed in athletics without difficulty. No illness except occasional attacks of tonsillitis. Tonsillectomy five years ago. Small tag of tonsil tissues left. Habits correct, except excessive cigarette smoking.

Present illness: Two days before seen he was in the gymnasium partaking of a strenuous game of handball. He suddenly became dizzy and felt faint. Had to lower his head between his knees or would have fainted. Felt cold and looked white. Cold sweat broke out. Felt weak and faint for about one-half hour. At this time he became conscious of his heartbeat, and it felt irregular. Has been feeling depressed since and easily tired out.

Physical examination: Essentially negative. Heart not enlarged, completely irregular, first sound at apex somewhat snappy, P_2 accentuated. Blood pressure. 130/90. V. C., 4,400 normal. Laboratory examination, negative.

An electrocardiogram taken when first seen on Dec. 11, 1921 showed auricular fibrillation rate 70-80 and slight right ventricular preponderance. As he showed no evidence of cardiac insufficiency he received no digitalis and was merely advised to restrict his activities, as his fibrillation was considered a transitory one, resulting from his acute cardiac overstrain. The fibrillation persisted, however, and on Dec. 5, 1921 he was put on quinine sulphate, gr. v, three times a day. After his fourth dose the palpitation and precordial discomfort disappeared. When seen, his pulse was slow and regular. Electrocardiogram taken on Dec. 7 showed normal rhythm with rate of 60.

Dr. Chester O. Tanner presented the following case for Dr. Franklin R. Wright:

Case of melanoma with no signs of recurrence nine and one-half years after operation.

Case 20. (463.)—H. P., aged 41, male, was admitted to the hospital May 16, 1912, because of a purplish colored tumor growth on the inner aspect of the right leg. He gave the following history:

Ever since boyhood he could remember a small raised pigmented mole on the right leg. In his work as a mail-carrier he rode a bicycle and the mole rubbed against the bicycle frame. About a year previous to admission the mole suddenly began to grow, increased rapidly in size, and bled easily. Examination on admission to the hospital showed an elevated purplish colored tumor mass, the size of a hickory nut, on the inner aspect of the right leg. No metastases or glandular involvement were found.

Operation: May 17, 1912. Tumor with adjacent oval-shaped area of skin and subcutaneous fat, 8 cm. x5 cm. in size, was removed.

Gross specimen is a purplish colored, roaghened, tumor mass, 3.5 cm. in diameter, elevated 1 cm. above the skin surface, together with an ovoid area of skin 8 p. x 5 cm. in size. Running out from the base of the tumor for a distance of about 1.5 cm. is an irregular indurated skin area. Microscopic sections through the main portion of tumor show a slightly thickened squamous epithelial surface, beneath which are large masses of epithelioid-like cells separated by dense connective tissue septa. These cells are polygonal or fusiform in shape, with tiny processes. These processes in many of the cells contain brownish-yellow pigment granules. Within the connective tissue cells of the septa and also in the interspaces are seen deposits of this pigment.

Diagnosis: Malignant melanoma.

Subsequent history: June, 1921, the patient is still living and well with no signs of recurrence more than nine years after operation.

In reviewing the literature upon the rapidity of growth and mortality of malignant melanomata in general, we find an early death in most instances and a few cases where a recurrence was prevented for a long period of time. Bloodgood has careful personal notes of 65 cases of malignant pigmented moles. These cases were collected from various sources. In every instance the diagnosis was confirmed by a pathologic examination. Up to the present time there is not a definitely cured case among them. Just collected 57 cases who lived on an average of three years from the time of the first observation of the tumor until death. Henocque reported a case of melanoma of an axillary gland which existed nine years up until the time of the patient's death from pyemia. Later Schilling described a similar tumor, which developed on the inner side of the left knee, and, growing slowly since puberty, existed twenty years up until the time of death from numerous metastases. Eves analyzed the records of the melanomata in the London Hospital during a period of twenty-five years and found 45 cases, of which 33 occurred in the skin. Out of this number 26 began in pigmented moles. The average duration of life in his series was between two and three years, and one was prolonged to eleven years. In still another case, a melanoma of the dorsum of the hand, involvement of the lymphatics of the arm and axilla was delayed for twenty years.

Wilson and Kolteyer collected thirteen cases, but were unable to determine the exact length of duration of the disease in all of them. The shortest course was measured by weeks, while in the longest, death occurred after a period of ten years; the average duration slightly exceeded three years. Keen reported 3 cases, one of which showed no signs of recurrence seven years after operation.

Broders and MacCarty were able to follow 38 patients with melanoma and found that 86 per cent (33 patients) died as follows:

Within 1 year after operation.	24
Within 2 " " "	4
Within 4 " " "	1
Within 8 " " "	3
Dead, date unknown	1

The other five patients were followed and found to be living as follows:

1 year after last operation	2 patients
2 " " " "	1 "
3 " " " "	2 "

The average duration of life in this series after the last operation was eleven months and three days. (This includes a melanoma of the choroid, where the patient lived eight years after operation.)

This paper does not include melanoma of the choroid, which condition seems to be quite different from that of the skin melanoma.

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Dr. W. F. Braasch, Rochester, presented three cases of duplication of the renal pelvis (double kidney).

Case 1. (A376487),—Miss M. J., aged 32, came to the Mayo Clinic because of attacks of dull pain referred to the left upper abdominal quadrant and radiating to the lower quadrant; she had had attacks for four years, a severe one, one and one-half years before. Recently the attacks had occurred every eight to ten days, or they lasted from twelve to twenty-four hours and were followed by a dull ache in the anterior part of the abdomen, often with flatulence and distress over the entire lower abdomen. Frequency was moderate. It will be noted that the pain was entirely anterior and not at all suggestive of renal involvement.

The systolic blood pressure was 98; the diastolic, 66. The urinalysis was practically negative. The phenolsulphonephthalein return was 50 per cent in two hours and fifteen minutes. Röntgenograms of the urinary tract, colon, and stomach were negative. A cystoscopic examination was made for the purpose of identifying the pain.

Both ureteral orifices were normal in location and appearance; the secretion of the right kidney was normal. A catheter introduced into the left ureter did not meet obstruction; 110 cubic centimeters of residual urine was withdrawn from the renal pelvis; there was only a faint trace of phenolsulphonephthalein in fifteen minutes. A pyelogram of the left kidney showed definite dilatation of pelvis and calyces. The dilatation, however, did not appear sufficiently marked to account for the large amount of residual urine found in the renal pelvis, which we were at a loss to explain. A diagnosis of left hydronephrosis was evident. (Fig. 1.)

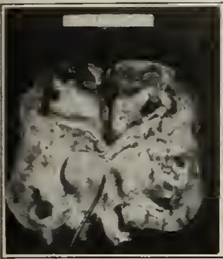

Fig. 1.

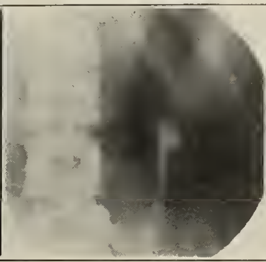

Fig. 2.

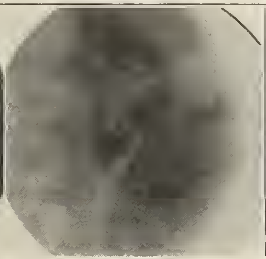

Fig. 3.

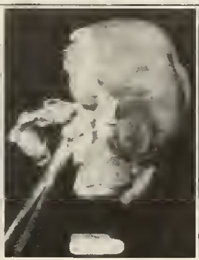

Fig. 4.

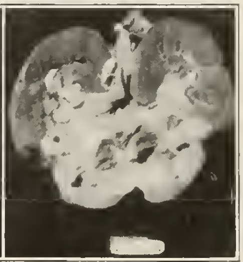

Fig. 5.

At operation the renal pelvis was found to be markedly dilated. The kidney tissue was evidently largely destroyed, and a nephrectomy was performed. On section of the kidney two definite segments of the renal pelvis were found, the upper of which was confined within the kidney proper; the dilated portion visible outside the kidney was directly related to the lower segment only. The two segments of the pelvis were separated by a definite band of atrophied renal tissue and were connected by a narrow isthmus, which corresponded to two adjacent calyces which had coalesced. The calyces were markedly dilated in both pelves. Only a narrow rim of cortical tissue remained, which appeared to be atrophic.

Case 2. (A342668)—Mrs. B. M., aged 30, came to the Clinic presenting symptoms of urinary frequency which had begun eleven years before and had persisted at intervals since, and pain referred to the neck of the bladder. For two years the patient had had occasional dull pain referred to the left kidney area, but this had improved during the past year. Formerly she had occasional spells of epigastric distress. The general condition was suggestive of neurosis. There was no loss in weight. (Fig. 2.)

General physical examination, including röntgenograms of the urinary tract and chest, was negative. The systolic blood pressure was 100; the diastolic, 55. A specimen of urine catheterized from the bladder showed but twenty pus cells to a high-power field of the microscope. The sediment was stained for the bacilli of tuberculosis and was negative. The phenolsulphonephthalein return was 50 per cent in two hours and fifteen minutes. Cystoscopic examination revealed a bladder with normal capacity, and, save for a few areas of slight inflammation, comparatively normal. The left ureteral opening was slightly eroded, with an inflamed area of mucosa and granulation tissue around it. Obstruction was met by the catheter introduced into the left ureter at a distance of 2 cm. from the opening, but at a subsequent examination the catheter passed into the ureter to a normal length without obstruction. Catheterized specimens obtained at the second examination from both right and left kidneys were normal. A pyelogram made of the left side showed a very small pelvis with abbreviated calyces. The ureter was but slightly dilated for a distance of several centimeters. Below this it was markedly dilated. A diagnosis was made of duplication of the pelvis and ureter with destruction of the lower pelvis (?), atrophic pyelonephritis (?), and tuberculosis of the left kidney (?).

At operation a double kidney, with duplication of the pelvis and ureter, was apparent. The lower pole of the kidney was atrophic and cicatricial. The two parts of the kidney seemed quite distinct, with a definite zone of demarcation. It was thought at first that the lower portion was atrophic as the result of cicatricial pyelonephritis, since no definite evidence of tuberculosis had so far been discovered. The lower portion was then resected without much difficulty. On microscopic section of the renal tissue at the line of excision areas were found containing atypical tubercles and giant cells. The remaining portion of the kidney was then removed, even though no definite evidence of tuberculosis was found in the tissues removed from the line of excision.

Case 3. (A377195)—Mr. G. V. G., aged 35, came to the Clinic with symptoms beginning fifteen years before with slight urinary frequency at irregular intervals. Seven years before he had had a period of dysuria with increased frequency and very cloudy urine, which had continued over a period of several months. Since then he had had diminished urinary disturbance with soreness and dull ache in the urethra. Five years before he had noticed hard painless nodules in the left epididymis, and two years before the same condition in the right epididymis. One year before he had had slight hematuria. (Fig. 3.)

The general examination was negative save for moderate chronic bilateral tuberculous epididymitis. The left lobe of the prostate was nodular. Röntgenograms of the urinary tract and chest were negative. A moderate amount of pus was found in the urine, and after repeated stains, acid-fast bacilli were found. The phenolsulphonephthalein return was 50 per cent in two hours. Cystoscopic examination revealed a slight cystitis. The urine from both ureters appeared to be normal. A catheterized specimen of urine from the right kidney was normal, that from the left kidney contained an occasional pus cell. The differential phenolsulphonephthalein test showed twenty per cent to be coming from the left kidney and seven per cent from the right in fifteen minutes. A pyelogram of the left side showed marked dilatation of the ureter; the pelvis and calyces were abnormally small A diagnosis was made of tuberculosis of the left kidney. (Fig. 4.)

At operation a double kidney with tuberculosis in the lower segment was found. The upper portion of the kidney appeared to be normal, while the lower segment was very evidently diseased and functionless. Since the bacilli of tuberculosis had been found in the urine, a complete nephrectomy was performed. On section of the kidney a sharp line of demarcation between the healthy and diseased portions was noted. On microscopic examination of the apparently normal tissues, however, several areas of encroaching foci of tuberculosis were observed. (Fig. 5.)

DISCUSSION

Dr. A. Schwyzer: We have to thank Dr. Braasch for bringing these interesting cases before the Academy. The marked infection of one portion of the kidney with practically complete freedom of the remainder of the kidney is very interesting.

In this connection I may mention a case where we found the upper pole of the right kidney in a young woman the seat of hundreds of minute abscesses. The patient had had chills for a week before. Finally she began to have some pain in the right loin. The urine was practically negative. We just found a trace of albumin and some pus cells coming from the right kidney. On cutting the kidney partly open by a longitudinal incision along its outer border, it was quite remarkable how all these abscesses were entirely located in the upper pole and ended in a sharp line at the junction between the upper and the middle thirds. The lower two-thirds were entirely normal. It must have been that the infection, probably in the wall of the artery feeding this area of the kidney, caused these little septic emboli. We amputated the upper third of the kidney and the patient became normal in temperature within 48 hours and had a very smooth recovery. She remained well; is married, and has had two children. I think it was quite valuable to save this kidney as in pregnancy, with possible ureteral difficulties, two kidneys make the condition surely safer.

I have never seen such a complete reduplication of the kidney pelvis in such a definite way without a double ureter.

ACUTE GLANDULAR FEVER IN CHILDREN*

By Goldie E. Zimmerman, M.D.

SIOUX FALLS, SOUTH DAKOTA

Glandular fever was first described in 1889 by E. Pfeiffer,[1] who claimed it to be a distinct and independent disease entity. It is an acute infectious disease with sudden onset and acute course, fever and swelling of cervical lymph nodes, and terminating usually by crisis. Filatow[2] and Schleissner called attention and made contributions to the subject. There is still much discussion as to whether such a condition exists as a disease, or does it but represent a state of glandular enlargement secondary to infection of the nasopharynx and mouth, and through these the more distant groups of glands become affected. Hence this condition is only a manifestation of glandular enlargement due to infection of one or more of the mentioned areas. Even so, if this is true, there is a severe reaction in the glandular system which is so characteristic that there is as much cause and justification for speaking of glandular fever as of measles and scarlet fever, which are only the skin manifestations of mucous membrane infections. In most text-books it has no recognition, and but very little is found on the subject.

The clinical picture reveals a child taken suddenly ill, with a fever, sometimes rising rapidly to 104° F., malaise, frequently nausea, and occasional vomiting. If the patient is old enough to talk she complains of a headache, pain in the limbs, and unusually pain in the throat and often in the abdomen. Upon examination swelling and acute tenderness of the glands of the neck are found. Below the angle of the jaw and usually on the left side is a slightly enlarged gland about the size of an almond. The lateral deep cervical glands can be felt slightly enlarged, like a string of beads along the posterior border of the sternomastoid muscle. The supraclavicular, submaxillary, and parotid glands are also enlarged. The entire lateral and posterior aspects of the neck are dotted with glands. The axillary and epitrochlear and inguinal glands are frequently enlarged and tender. The bronchial and retro-esophageal glands become enlarged as there is pain and difficulty in swallowing, and a cough, described as croupy, begins with the swelling and terminates with the subsidence of the condition. The temperature is very irregular, often rising and falling several times in a day, ranging from 101° to 104° F.; pulse, 100-110-140; respiration, in normal ratio to the temperature and pulse. The temperature subsides in many cases by the third day, and the general condition rapidly improves. In more severe cases it remains 104° F. As each new group of glands becomes affected the temperature becomes elevated.

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*Presented before the South Dakota Section of the American College of Surgeons, at Aberdeen, June 28, 1921.

Glandular fever is contagious, for, where it has visited a household of several children, usually more than one become affected. It is a disease of childhood, although cases are reported among adults. Its pathology is as yet obscure. Since Pfeiffer described it, evidence seems to point to the possibility of a streptococcus of an unknown description, which enters by the way of the throat and gives rise to angina and later localizes, as it does in scarlet fever in the skin, and in glandular fever in the lymph nodes. That is to say, we have an identical infection with varying localization.

In favor of its being a distinct disease entity, the following seems self-explanatory: (1) Its epidemic character. (2) Its sudden onset with fever and short definite course, often with critical termination, seems to suggest an acute infectious disease. (3) In some cases the nasopharynx is clear, and in some the tonsils have been removed.

The prognosis is favorable in most cases, although fatal cases are reported. Many weeks are required before recovery is complete. The patient's health is seriously impaired. Fatal cases are usually due to nephritis. Few cases go on to suppuration, and this rarely occurs in more than one gland mass. A systolic mitral murmur appears in many cases after two or three days, but it usually disappears after recovery. It is probably hemic in character.

Treatment.—Rest in bed, especially at the onset and when the temperature is high and during exacerbations. Isolation is advised, with light diet, and an ice-bag on the neck. Cool sponging will relieve the irritability. Many mild cases require no treatment. Various medications are used. The writer finds calomel and salicylates of some value. After recovery the patient usually shows a marked anemia, which calls for treatment.

Case 1.—D. D., a girl, aged 3. Previous illness, none. Perfect health up to present.

Seen on the evening of March 6, 1921. The day before she had complained of pain in the abdomen and refused to eat. In fact she had not felt well for three days.

Physical examination showed child with flushed face: temperature, 104° F.; pulse, 130; respiration, 30. She was very irritable and wanted to be left alone to sleep. The throat was congested slightly; the glands at the angles of the jaw on both sides could be palpated and were about the size of small peas, very tender to touch. Swallowing seemed painful. A croupy cough which alarmed the parents was the cause for sending for a physician. The chest, negative. Abdomen, slightly tender. Next day the conditions were the same except for the marked tenderness along the posterior border of the sternomastoid muscles and a swelling at the angle of jaw on the left side about the size of an almond. The axillary and inguinal glands were enlarged slightly. The cough was more severe. Three days later, March 9, the patient was feeling much better, but I kept her in bed, and not until March 13, the eighth day from first call, was the temperature normal and the glands rapidly receding. Urinary findings showed specific gravity 1,030, acid in reaction, and leucocytes 16,000.

Case 2.—M. G., aged 5; sick several days before I saw her; temperature 100° to 102° F. by mouth when taken by the mother. The child was tired, had complained of headache and nausea, and vomited when first taken sick. The mother had noticed glands of neck swollen, and the child complained of pain upon moving the head; had not been in bed, but would lounge around most of the afternoons.

When I saw her, the temperature was 103° at 5 p. m. She complained of being tired. Pulse, 130; cough, most severe at night; throat clear; tonsils had been removed one year before. Leucocytes, 16,400. Urine neg. Inc. small. Glands of neck still swollen and slightly tender to touch. The patient was put to bed. Five days later her temperature was 104° F. by mouth at 10 a. m. On the following day the temperature normal in the morning and slightly elevated in the afternoon, the glands slowly returning to normal.

Case 3.—M. G., aged 8; sister of patient of Case 2 taken ill a few days later. Temperature by mouth, 103° F. at 4 p. m. Vomited and complained of pain in the abdomen. Next day physical examination revealed some swelling of glands on both sides of neck. Enlarged axillary and inguinal glands. Abdomen tender. Cough, croupy in character. Temperature, 102° F. at 4 p. m. The increase in temperature continued for two weeks and at end of that time returned to normal. Glands very slightly enlarged and patient feeling good, but easily exhausted upon slightest exertion.

The object of this paper is not to describe or attempt to tell you anything about a new disease. I, perhaps, have not even proven that it is a distinct disease entity, but in the last four months I have come in contact with ten cases which have shown symptoms identical with the just described glandular fever. I have found them extremely interesting and thought them worth reporting.

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THE
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THE PROBLEM OF HOSPITALIZATION

Doctor Beard's discussion of modern hospital problems in this issue of THE JOURNAL-LANCET is a timely one. Hospital practice,—the business of conducting hospitals,—has been about as unorganized in the past as the practice of medicine itself. Medical men—and it is usually medical men who either conduct hospitals or head their staffs—have seldom possessed a genius for organization. These institutions very rarely measure up to standards of economic efficiency.

The movement toward the standardization of hospitals has been a professional one, inspired by a professional purpose. The movement toward their economic reform must be a social one and has a distinctly communal purpose. The first step in this direction is the proper classification of hospitals in accordance with the type of public service they primarily render.

The definition of the function of these several hospital types which Doctor Beard suggests, is economically and perhaps sociologically correct, although the two qualifications, with our present imperfect social machinery, do not always run together. Economically speaking it would be well if the free and per-diem treatment of indigent and temporarily or partially impoverished patients should be confined to the public hospital, and its expense covered by taxation. The care of these patients in private hospitals has been necessary in the past and in some communities is necessary still; but it makes for inefficient service, is an excuse for deficits, and is held to justify an appeal for public contributions.

It is indubitably true that every hospital of whatever type should come under a strict budget system and live within its budget. There is no more excuse for deficits in the private than in the public hospital. Endowment of hospitals, whether by public appropriation or by private gift or legacy, is not only a legitimate,—it is an admirable thing; but deficits in operation and demands for subscriptive relief are altogether unjustifiable. Maintenance should be a matter either of taxation or self-support.

In the discussion of endowment, Doctor Beard's plea for the development of the University Hospitals, whether by public or private funds, should reach somewhere. It is time that the Medical School, the medical alumni, and the medical profession of the State should get together and work together again to put medical education on a proper basis; to restore the School to its rightful place among the leading medical institutions of the land; to make it again the pride of this commonwealth and the efficient servant of its educational needs, to the full supply of which the State stands pledged. Let the bickerings of discontent be silenced. Let State pride take the place of professional criticism. Granted that the University has shocked the professional sense of some by the medical alliance into which it has entered, there remains room for divergencies of opinion on the point. If doubtful, perhaps, have been the methods by which the affiliation was brought about, nevertheless the alliance itself is an accomplished fact, and the result is a substantial asset of medical education in the State. Let the profession bury its grievances and get behind the University. Let the alumni prove their loyalty by forgetting their differences. Let the dislocations of mutual interest and coöperation between them and their School be reduced. And let us all begin by asking that the Medical School be given, and given now, its full share of the building fund appropriation to which it is entitled. The legislature provided that fund upon a building program submitted by ex-president Burton, and it included hospital and laboratory extension to the extent of a million dollars. Let us urge that the State's Medical School get its share and that provision be made to educate students of medicine to the full measure of the fitness of Minnesota candidates for admission, to the full measure of Minnesota's demand for doctors, to the full measure of the capacity of a major medical school.

A NOTABLE MEDICAL GATHERING IN ST. PAUL

St. Paul had a notable gathering of medical men last month (Jan. 10-13), drawn by the second annual Clinic Week of the Ramsey County Medical Society; a district meeting of the American College of Surgeons for Wisconsin, Minnesota, North Dakota, and Montana; and the Northwestern Medical Officers' Association of the World War.

At the meeting of the A. M. C. of S. no clinics were given, and the meeting of the Medical Officers was only a social and business affair. This left all free to attend the clinics given by the St. Paul men and their distinguished guests, who were numerous; and the social functions were attractive. The registration bureau of Clinic Week probably got the names of all the medical men attending the three meetings, the total number being 281, of whom 48 registered from Minneapolis. If 130 or 140 more were drawn by the meetings of the College of Surgeons and the Officers' Association, which seems a small estimate, barely 100 were drawn by the Clinic Week from outside the Twin Cities. If our estimate of attendance is correct, we cannot fail to think that the efforts of the hospitals and the medical men of the Ramsey County Society were not appreciated by the medical profession of the Northwest; and, besides, we fear the forthcoming Clinic Week of the Hennepin County Medical Society will not draw a sufficient number of physicians from outside the Twin Cities to justify the expenditure of money and effort demanded to conduct such a clinic.

Of course, there is something besides numbers in attendance that determines the value of an annual clinic week, conducted in a large city where clinical material is abundant and is in the hands of our best medical men for demonstrations; yet the number of men attracted, year after year, by a clinic measures the estimate of the profession of such clinics, and, in no small measure, determines their value.

We have the utmost faith in the Minneapolis Clinic Week, for its value has been demonstrated beyond question, and a failure to draw more visitors this year than in previous years may be well set down to the stress in financial circles of which every medical man is keenly aware. Minneapolis Clinic Week will be held this year, probably in April, and its work will be more valuable to all classes of physicians than the work of previous years. The Week bids fair to become a source of scientific information that few physicians will want to miss. It will present, in concrete form, the advanced work done every year in the medical and surgical world, and it cannot fail to be attractive.

AN UNFORTUNATE ADDRESS

A disturbing element that created much outside discussion was an address delivered by Dr. R. F. Raymond, Assistant Director of the American College of Surgeons, who talked of hospital standardization, hospital practice, and fee-splitting. He made the very unnecessary (at this time) statement that 10 per cent of all operations are unnecessary, and he further stated that the fee-splitting between the man who refers cases to the surgeon and the surgeon who performs the operations, is still in existence.

Dr. Raymond should have been warned beforehand in coming to Minnesota to make no such statement as that. There may be a few fee-splitters left, just as there are a few rail-splitters in the Northwest, but generally to accuse the physicians and surgeons of this section of fee-splitting was unnecessary and uncalled for, and was a breach of courtesy. If Dr. Raymond's address was aimed at the Minnesota-Wisconsin-North Dakota-Montana surgeons, their hosts in St. Paul must have been very much chagrined.

FIFTIETH ANNIVERSARY OF THE MEDICAL TIMES

As The Journal-Lancet recently had its own fiftieth anniversary, it can, and does, extend hearty congratulations to its excellent contemporary, the *Medical Times,* of New York City, on its issue of January 1, 1922, which marks the paper's half century of service to the medical profession.

The issue is an admirable one, full of good things. Its articles are on "The Progress of Internal Medicine During the Past Half Century," by Dr. Reynold W. Wilcox, of New York City; "Fifty Years of Surgical Progress," by Dr. William F. Campbell, of Brooklyn; "A Review of Pediatrics During the Last Half Century — A Few of the Most Important Diagnostic and Therapeutic Advances," by Dr. Louis Fischer, of

New York City; "A Half Century in Urology," by Dr. Henry H. Morton, of Brooklyn; "The Progress of Obstetrics and Gynecology During the Last Fifty Years," by Harvey B. Matthews, Brooklyn; "A Half Century History of the Advance in Diagnosis and Treatment of Diseases of the Nose, Throat, and Ear," by Dr. Harold Hays and Dr. Arthur Palmer, of New York City; "My Observations of Medical Progress in the Last Fifty Years," by Dr. G. H. Sherman, of Detroit, Mich.; and "Fifty Years of Preventive Medicine and Hygiene," by Dr. H. Sheridan Baketel, editor of the *Times*.

Each of the above articles contains a real and admirable review of the half-century progress in the department of medicine treated by the writer, and it would be fortunate if such information could be placed before the entire medical profession and even the general public.

A brief editorial summary of the outstanding features of the progress of the past fifty years, with an equally brief statement concerning the "new stimuli that challenge and inspire us," is both informing and encouraging.

The *Times* has had but three editors since its foundation,—Dr. Egbert Guernsey, Dr. A. K. Hills, and Dr. H. Sheridan Baketel, all men of very high standing in the profession. Dr. Baketel has been editor of the paper for ten years, coming into the work when Mr. Romaine Pierson purchased the journal from Dr. Hills.

We wish long life to both editor and publisher of the *Times*.

A COMPLIMENT

A few complimentary notes from subscribers reach every editor's desk and are appreciated. Naturally, most of these are from friends and are general in their statements, still they sound good to the editor. Now and then an appreciation comes from an entire stranger, and is pleasing both because it comes from a stranger or strangers, and because they see in the LANCET just what we are attempting to make it. Such an appreciation comes from a Clinic in one of the larger cities of Minnesota, and we quote a line or two from it:

"We appreciate the more intimate and personal contact with the profession that the LANCET gives us, distinguishing it from the more distant and exclusive features of other periodicals."

MISCELLANY

DR ALBERT J MURDOCK

Dr. Murdock died of cerebral hemorrhage January 4, 1922. He had suffered complete left hemiplegia since the night of December 20, and though conscious apparently, was not able to comprehend the gravity of his own case. Though helpless, he manifested his kindly spirit and hopeful disposition in proposing to do for himself what was beyond his power.

Dr. Murdock was born in Oswego, N. Y., on March 27, 1847. When he was three years old his family moved to Rensselaer Falls, N. Y.

He came of a medical family. His father, grandfather, two uncles, and three brothers were all physicians. His medical training was excellent for his day; for he attended Governear Wesleyan Academy, Michigan University, and graduated at Columbia University, N. Y. He continued his student habit through life, and was continuously reading medical literature. He was a faithful attendant of all the meetings of the Hennepin County Medical Society, of which he was a member. He was also a member of the Minnesota State Medical Association, and of the American Medical Association, and was much respected in the profession.

He came to Minneapolis in 1883, and soon built up an extensive practice. Dr. Murdock was a man of tender instincts and excellent judgment, and was very faithful to his patients. His old families, who had known him for years, believed in him profoundly, and now revere his memory.

He was a quiet going man, and his cheerful undisturbed poise elicited confidence and hope. Those who knew him intimately found him a reliable friend with a generosity that knew no bounds, and a spirit of accommodation that delighted to assist. He was unselfishly serene with a dignified urbanity that won universal esteem in a practice of 40 years in Minneapolis. He was a good citizen, and believed in the Sovereignty of God and social betterment, a Republican in politics and a Presbyterian in faith, and had been a ruling elder of Bethlehem Presbyterian church for thirty-six years. He was a member of the Kuhrum Lodge of F. and A. M., and Knights of Pythias.

He was a prince in his own home, always lovely and kind, and optimistic.

He is survived by his wife and one daughter, Mrs. J. D. Bren, of Minneapolis; one brother, Dr. Horace Greeley Murdock, of Taylors Falls, Wis.; and two sisters, Mrs. Childs and Mrs. Doty, of Rensslaer Falls, N. Y.

DAVID OWEN THOMAS, M. D.

LIFE

Life. An odd business. Into life we come, mysteriously arrived, are set on our feet and on we go; functioning more or less ineffectively, passing through permutations and combinations; meeting the successive events, shocks, surprises of hours, days, years; becoming engulfed, submerged, foundered by them; all of us on the same adventure yet retaining nevertheless each his own individuality, as swimmers carrying each his undetachable burden through dark, enormous and cavernous seas. Mysterious journey, unchartered, unknown and finally—but there is no finality. Mysterious and stunning sequel—not end—to the mysterious and tremendous adventure. Finally of this portion, death, disappearance,—gone. Astounding development. Mysterious and hapless arrival, tremendous and mysterious passage, mysterious and alarming departure. No escaping it; no volition to enter it or to avoid it; no prospect of defeating it or solving it. Odd affair. Mysterious and baffling conundrum to be mixed up in. Life.—"If Winter Comes," by A. S. M. Hutchinson.

THE DOCTOR

Have you ever thought of a doctor's time and what he does for you?
Do you ever think of the hours he's watched all the long night through
When Jack was ill with pneumonia and you had watched him lay
White and silent until you thought not long in the world he could stay?
Oh, how your heart was aching: please, God, don't take him away from me,
You begged of the doctor to save him;
To anything you'd agree
When after the long dark hours doctor smiled and bade you be brave,
For he had given you all he had and brought Jack back from the grave.
Into your home he comes and goes, giving his best to all.
But when you are well and everything's right, how often do you recall
The services he has given you?
Perhaps you may need him again;
So pay him the money you owe him and speak of him as your friend.

Ethel Champney.

Belle Fourche, S. D., January 14, 1922.

WHAT IS A FRIEND

What is a friend? I will tell you. It is a person with whom you dare to be yourself. Your soul can go naked with him. He seems to ask of you to put on nothing, only to be what you are. He does not want you to be better or worse. When you are with him you feel as a prisoner feels who has been declared innocent. You do not have to be on your guard You can say what you think as long as it is genuinely you. He understands those contradictions in your nature that leads others to misjudge you. With him you breathe free. You can take off your coat and loosen your collar. You can avoid your little vanities and envies and hates and vicious sparks, your meanness and absurdities, and in opening them up to him they are lost, dissolved on the white ocean of his loyalty.

He understands. You do not have to be careful. You can abuse him—neglect him—tolerate him. He likes you. He is like fire that purges all you do. He is like water that cleanses all you say. He is like wine that warms you to the bone. You can weep with him, laugh with him, sin with him, pray with him. Through and underneath it all he sees, knows and loves you. A friend, I repeat, is one with whom you dare to be yourself.—*Kansas City Post.*

THE MINNESOTA STATE BOARD OF HEALTH AND THE SHEPARD-TOWNER ACT

In order to take advantage of the Federal act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes, the State Board of Health created a Division of Child Hygiene and gave the Executive Committee power to act on any matter, including the appointment of a staff and the fixing of salaries necessary for initiating the work of the Division in case the appropriation becomes available before the April meeting of the Board.

The Board further appointed a State Advisory Board on Maternal and Infant Hygiene to consist of:

1. Dr. L. D. Coffman, President, University of Minnesota;
2. Miss Caroline Crosby, member State Board of Control;
3. Mrs. J. R. Brandrup, Chairman, Public Health Committee, Minnesota Federation of Women's Clubs;
4. Miss Margaret Wells, President League of Women Voters;
5. Dr. F. L. Adair, State Medical Association;
6. Dr. N. O. Pearce, Secretary, Northwest Pediatric Society;
7. Dr. Wm. F. Wild, Executive Secretary, Minnesota Public Health Association.

The functions of the Board to be as follows:

1. To suggest rules and regulations for adoption by State Board of Health as authorized under Chapter 392, Session Laws of 1921, to carry into effect the provisions of this act.
2. To pass upon plans of County or District Boards on Maternal and Infant Hygiene.
3. To advise the State Board of Health what assistance be given to county or district boards whose plans are approved.
4. To secure coöperative action through the various agencies represented by the members of the board in carrying out the provisions of the Federal and State laws on maternal and infant hygiene and to promote the public health and child welfare program in Minnesota.

Also, the Board provided for county and district boards as follows:

County Administrative Boards on Maternal and Infant Hygiene to consist of five members as follows:

1. County Superintendent of Schools.
2. County Commissioner (member of Child Welfare Board, if any).
3. County Health Officer.
4. President or Secretary, County Public Health Association.
5. A physician selected by the county or district medical society and approved by the State Board of Health like the physician appointed on county or district tuberculosis sanitarium commissions.

The duties of a County Administrative Board will be to plan and supervise the administration of maternal and infant hygiene in the county, subject to the provisions of the Federal and State laws and to the regulations of the State Board of Health.

District Boards:

Subject to the approval of the State Advisory Board two or more County Administrative Boards may unite to form their counties into a district to be under a District Administrative Board composed, either of all members of the county boards concerned, or, of not less than five chosen by the boards from their membership with representation proportional and of like composition to County Administrative Boards.

THE ARSPHENAMIN TREATMENT OF SYPHILIS

Notwithstanding the vast experience in the treatment of syphilis by arsphenamin and arsphenamin compounds profound disagreement exists as to the mode of administration and the value and the dangers of the method. At the Medical Society of London a discussion of the subject was opened by Col. L. W. Harrison, who is in charge of the military hospital for the treatment of venereal diseases in London. He stated that the modern arsphenamin was not nearly so efficient therapeutically as the preparation issued in 1910. The latter was certainly more toxic but the elimination of toxicity seemed to be accompanied by diminished therapeutic effect. The modern arsphenamin was, however, superior in efficiency to neo-arsphenamin; sodium arsphenamin seemed to be between the two. Silver arsphenamin was probably, as was claimed, about twice as effective as neo-arsphenamin in similar doses. The mode of administration influenced the effect of all these drugs. The vasomotor symptoms which followed intravenous injections of arsphenamin compounds seemed to depend on the physical state of the solution. He found arsphenamin much more prone to cause vasomotor symptoms than neo-arsphenamin, and silver arsphenamin would almost assuredly upset the patient unless it was well diluted. Of the neo-arsphenamin class of preparations, those which dissolved with difficulty were more liable to upset the patient when given in concentrated form. He did not agree with the injection of arsphenamin week after week according to a set program, without careful scrutiny of the patient before each dose. Fatal jaundice after administration seemed to occur in little groups, pointing to some adjuvant factor in its causation. He considered that the reliance placed on continued treatment with mercury after the Wassermann reaction became negative was not justified. Nobody knew how much activity was hidden behind the veil of a negative Wassermann reaction. If arsphenamin were only a symptomatic remedy, its use in the routine treatment of syphilis would be condemned; but it was the strongest specific remedy that we possessed. He upheld the method of chronic intermittent administration, not of mercury only, but of mercury and arsphenamin throughout the whole period of the treatment.

In the discussion which followed, Dr. J. W. McNee said that, among 75,000 patients treated for syphilis at the centers in one year, only ten deaths were reported as due to arsphenamin, and seventy-seven cases of ill effects. But these figures could not be taken as strictly accurate. Deaths might be reported as due to acute yellow atrophy of the liver and other conditions; for to say that death was due to arsphenamin on the certificate was equivalent to saying that the disease was syphilis.—Journal of the A. M. A., January 7, 1922.

NEWS ITEMS

Dr. R. M. Eppard has moved from Duluth to Cloquet.

Dr. O. N. McClusky has moved from Carrington, N. D., to Kenosha, Wis.

The city of Northfield has won a suit by which it holds a bequest of $60,000 for building a city hospital.

Dr. Frank McAlexander, of Rosebud, Mont., was married last month to Miss Beth King, also of Rosebud.

St. Luke's Hospital, St. Paul, cared for 3,158 patients in 1921, and 1,743 operations were done in the hospital.

The Minneapolis General Hospital has a leprosy patient on its hands. The patient is a woman, who has a boy two years old.

Dr. A. S. Hoiland, of Argyle, is taking an extended postgraduate course in the New York Post-Graduate Medical School and Hospital.

Dr. W. W. Bissell, who formerly practiced medicine in Rochester, has invented a stump-puller, with a pull. He is now a resident of Milwaukee.

Dr. Stanley Mulholland, a recent graduate of the Medical School of the University of Minnesota, has become associated with Dr. J. E. Crewe, of Rochester.

Dr. J. W. Andrews, of Mankato, has announced his candidacy for the State Senate from Blue Earth County. The Senate and the people need such men as Dr. Andrews.

The Regents of the University of Minnesota are planning a course in public health instruction that will give the student a degree, and thus place his work on a professional basis.

Dr. J. H. Rishmiller, of Minneapolis, goes to Florida next week for a month. Dr. Rishmiller makes it a point to go through a standard textbook during his annual vacation.

Dr. Nellie S. Shulean, of Cambridge, has been tendered a lucrative position in a hospital at Sommerset, Penn. She has gone east to look over the situation before deciding.

Dr. Egil Boeckmann, of St. Paul, was re-elected president, and Dr. C. L. Scofield, of Benson, was re-elected vice-president of the State Board of Health at the Board's annual meeting last month.

Dr. John L. Mills, of Grand Rapids, was married last month to Miss Catherine Babcock, of Grand Forks, N. D. Dr. Mills is a recent graduate of the University of Minnesota Medical School.

Dr. Milo P. Gerber, a recent graduate of the Medical School of the University of Minnesota, was married last month to Miss Helen R. O'Connell, of Minneapolis. Dr. Gerber will locate in Brainerd this month.

Dr. Thomas J. Kinsella (Minnesota Medical School, 1919), and Dr. Edward A. Regnier (Minnesota Medical School, 1921) have become members of the Nicollet Clinic, Minneapolis, in the division of surgery.

The Glen Lake Tuberculosis Sanatorium, of Hennepin County, has become the legatee of $11,500, which was left over from the 1918 sale of Christmas Seals in the hands of the County Tuberculosis Association.

Dr. Wilbur E. Winsett, of Sioux Falls, S. D., died last month at the age of 55. Dr. Winsett was a graduate of the Chicago Homeopathic Medical College with the class of '95, and has practiced in South Dakota over twenty years.

Dr. F. G. Sparling, who practiced in Minneapolis for a number of years, retiring from practice ten years ago, died last month at the age of 57. Dr. Sparing was a graduate of the Medical School of the University of Minnesota.

It is believed that the attendance at the annual meeting of the American Medical Association, in St. Louis on May 22-26 will be the largest in the history of the Association. If so, the wise man will make early reservation of rooms in St. Louis.

The State Board of Health of Montana, through its secretary, Dr. W. F. Cogswell, strenuously protests to the city of Anaconda against its action in abolishing the office of sanitary inspector, turning over the duties of this office to the fire chief.

It is announced from prohibition headquarters in Washington that the physicians of South Dakota write very few prescriptions for alcoholic medicine. In 57 of the 64 counties of the state physicians have not taken out permits to write prescriptions of this kind.

The Winona County Medical Society held its annual meeting in Winona last month, when the following officers were elected: president, Dr. Hans Lichtenstein; vice-president, Dr. W. P. Lindsay; secretary, Dr. C. P. Robbins; treasurer, Dr. I. W. Steiner; delegate, Dr. E. D. Keyes.

The Northwestern Medical Officers Association of the World War held its annual meeting last month in St. Paul. Officers for 1922 were elected as follows: President, Dr. F. J. Savage, St. Paul; vice-president, Dr. S. Marx White, Minneapolis; secretary-treasurer, Dr. W. A. Dennis, St. Paul.

The West Central Minnesota Medical Society held its annual meeting in Morris the last of December. The following officers were elected for the current year: President, Dr. C. R. Christenson; vice-president, Dr. E. T. Fitzgerald; secretary, Dr. Amos Leuty, all of Morris; delegate, Dr. C. F. Ewing, Wheaton.

Mr. James L. Leonard, the manager of the Jordan Sulphur Springs and Mud Bath Sanitarium, of Jordan, Minn., died last month, at the age of 58. Mr. Leonard was a genial gentleman and an efficient sanitarium manager. He gained the respect and good-will of all medical men with whom he came in contact.

At the annual meeting of the Fergus County (Montana) Medical Society held at Lewistown, Mont., last month, officers were elected as follows: President, Dr. J. C. Dunn; vice-president, Dr. C. C. Wallin; secretary, Dr. E. A. Welden—all of Lewiston; delegates, Dr. F. F. Attix, of Lewiston, and Dr. H. W. Wardle, of Moore.

The Nicollet-Le Sueur County Medical Society held its annual meeting at Le Sueur last month, when the following officers were elected for the current year: President, Dr. H. B. Aitkens, Le Sueur Center; vice-president, Dr. J. W. Daniels, St. Peter; secretary, Dr. J. E. LeClerc, Le Sueur; treasurer, Dr. D. W. McDougall, Le Sueur; delegate, Dr. J. E. Le Clerc.

Dr. W. J. Mayo told the Board of Regents, of which he is a member, at their meeting, that an emergency exists in Minnesota in the matter of trained nurses, and an effort will be made to get more young women to take up this profitable line of service. Dr. Mayo said that 40 per cent of the student nurses get married before the end of their course through the University and the hospitals.

Dr. Woods Hutchinson, of somewhere and everywhere, has been in the Twin Cities giving very entertaining lectures before women's clubs and other people. Dr. Woods Hutchinson is a bully good-fellow, as Roosevelt would have said. He deals in pleasing generalties from which all kinds of conclusions, true and false, can be drawn, and are drawn, but he always entertains. If he were to specialize he would make a good neurologist.

The Hennepin County Medical Society holds a meeting every Wednesday at the noon hour, when luncheon is served during the study hour, the topic always being a practical one. The monthly meetings are held in the evening, and the program is more formal and elaborate. A cordial invitation is given to physicians visiting the city to attend any of these meetings. At the next monthly meeting on February 6 the following program will be given, each paper being confined to seven minutes: "Cardiac Signs in Early Pulmonary Tuberculosis in Children," by Dr. Thomas Ziskin; "Morphological Studies on the Blood of Tuberculous Children," by Dr. Hal Downey; "Gastro-intestinal Findings in a Group of Tuberculous Children," by Dr. C. B. Wright; "On the Value of the Vital Capacity of the Lungs of Children as an Aid in the Diagnosis of Pulmonary Tuberculosis," by Dr. C. A. Stewart; "A Preliminary Report of the *X*-Ray Findings in a Group of Tuberculous Children," by Drs. R. G. Allison and R. E. Morse; "Dimensions and Measurements of Suspected Tuberculous Children," by Dr. R. E. Scammon; "A Study of the Clinical and Physical Findings and the Tuberculin Reactions in a Group of Tuberculous Children," by Dr. E. D. Anderson; "Orthopedics in Tuberculous Children," by Dr. Paul W. Giessler; "Incidence of Infection of the Mouth, Nose, Throat, and Ear in Tuberculous Children," by Dr. Carl W. Waldron; "Classification and Treatment of Tuberculous Children in Minneapolis," by Dr. J. A. Myers; "Some Observations on the Neurologic and Mental Status of a Group of Tuberculous Children," by Dr. C. E. Nixon. All the writers are associated with the Lymanhurst School for Tuberculous Children of Minneapolis.

OFFICE, FURNITURE, INSTRUMENTS, ETC., FOR SALE

The office furniture, instruments, books, drugs, etc., of the late Dr. A. J. Murdock, of Minneapolis, are for sale at low prices. Address or call 3161 Columbus Ave., Minneapolis, or telephone, call South 0483.

IN SOUTH DAKOTA

In a German community of 1,200 population in South Dakota, complete modern dental equipment and practice; modern hospital and complete *x*-ray outfit of physician at purchaser's disposal. Chance of a lifetime. Address 212, care of this office.

LOCUM TENENS WANTED

Not later than March 1, a service man or recent graduate, preferably a general practioner who can refract. Address 207 care of this office.

TECHNICIAN WANTS POSITION AT MODERATE SALARY

Can do urinary, blood, gastro-in-testinal and tissue work and Wassermanns Speaks, English, Norwegian, and German fluently, with a reading knowledge of French. Best of references. Address 209 care of this office.

LABORATORY TECHNICIAN WANTS POSITION

A young woman wants a position as laboratory technician preferably in the Twin Cities, either with a group of physicians or in a commercial laboratory. Experience: clinical routine laboratory bactriological and basal metabolism work. Best of references. Address 210, care of this office.

PHYSICIAN WANTED

A physician and surgeon for a live town in Northwestern North Dakota with an unlimited territory. Splendid opening for a young graduate interne properly recommended or for any good practitioner. Immediate opening, worth $7,000 to $10,000 yearly to the right man. Address 208 care of this office.

X-RAY APPARATUS FOR SALE

A Scheidel-Western X-ray Coil, 220 D. C., 25 Ampere, size 16, tube stand, and lead-glass bowl; all in good condition. For sale for $125. Address 202, care of this office.

PRACTICE AND DRUGS FOR SALE

An unopposed practice and location for sale in a town in the Southern tier of counties in South Dakota. Fine farming country and good roads. Nearest competition, 20, 25, 26, and 30 miles. Drug store (two stories) with living rooms above, for sale with practice. Practice averages $400 per month. Price, $3,500; cash required, $2,000. Address 203, care of this office.

FOR SALE

X-Ray Laboratory complete and practice of an *x*-ray technician in a Minnesota city doing a flourishing business. Practice can be greatly increased by treatment and diagnosis. Outfit consists of a Victor transformer; protective shield; Coolidge units; combination fluoroscopic table, gas, and Coolidge tubes; Coolidge stereoscope, Buckey diaphragm, and accessories, with office fixtures. Reason for sale, other interests. For sale as a whole. Address 204, care of this office.

LOCUM TENENCY WANTED

A competent practitioner in an established partnership is available for locum tenency. Address 205, care of this office.

LOCATION WANTED IN SOUTHERN MINNESOTA

A recent graduate, with some experience and good personality, desires a location in Southern Minnesota, preferably in a town with hospital facilities. Speaks Scandinavian and English. Address 206, care of this office.

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CANCER OF THE BREAST: THE RESULTS OBTAINED IN TWO HUNDRED EIGHTEEN OPERATIONS

By W. E. Sistrunk, M. D.
Section on Surgery, Mayo Clinic
ROCHESTER, MINNESOTA

I have recently studied in detail the histories of the 246 patients operated on for cancer of the breast in the Mayo Clinic during the years 1911, 1912, and 1913. I was fortunate in having at my disposal detailed histories, complete pathologic reports, and good descriptions of the operative procedures; and, after much effort, fairly accurate data of the results were obtained in 218 of the 246 patients.

The study of these cases impresses one that little more can be expected, so far as results are concerned, by a change in the present operative technic. The recurrences were mostly in late cases, evidently because cancerous tissue was left in regions inaccessible to the knife, while the highest percentage of cures and the infrequent recurrences occurred in patients operated on early in the course of the disease, before glandular involvement could be demonstrated. The end-results obtained are probably better than those obtained from operations in any other type of cancer with the exception of the basal-cell epitheliomas of the skin and cancers of the parotid gland and of the lip.

Only a comparatively short time has elapsed since surgeons regarded the condition of cancer of the breast with great pessimism. Practically all persons with the disease died, and it was generally believed that the condition was a systemic instead of a local disease. Too much credit cannot be given to the surgeons who have contributed toward the perfection of the operation as it is now generally performed, and have made it possible by surgery to achieve such results as those now obtained in a formerly almost hopeless condition. When the public is better educated with regard to the necessity of seeking surgical aid early for all breast tumors and when it is generally recognized by the entire medical profession that the day of watching breast tumors is past, it seems likely that as high as 75 or 80 per cent of patients with cancers of the breast should obtain from five-year to eight-year cures.

TYPE OF OPERATION

The operation usually performed is based largely on the knowledge of the lymphatic supply of the breast. The lymphatics draining the breast largely accompany the blood vessels and may be expected to be found along the course of the large vessels supplying the breast. These empty largely into the group of lymphatics lying along the axillary vein and those accompanying the vessels which perforate the chest wall (branches of the internal mammary and intercostal arteries). Lymphatics have also been found running from the upper inner quadrant of the breasts directly into the supraclavicular regions; from the lower inner quadrant of each breast into the opposite axilla; and to the epigastric region, and thence into the abdominal cavity along the round ligament of the liver. It does not seem practical to remove the supraclavicular glands in all patients operated on for cancer of the breast, and it is doubtful that much good would be accomplished by such a procedure. It is also impossible to remove all of the lymphatics accompanying the perforating branches of the internal mammary and intercostal arteries. Recurrences in the opposite axilla, except in advanced cases, are extremely rare; probably they are usually due to the fact that the disease has recurred at some point which is drained by lymphatics that empty into this axilla. For these reasons operative measures are necessarily limited largely to the wide removal of the skin, subcutaneous fat, superficial and deep fascias, and the axillary lymphatics; the other tissues which it would be of advantage to remove are beyond the scope of surgery. When complete axillary dissections are made, even in cases in which the axillary glands are involved, recurrences seldom occur in the axilla. In the series studied local recurrences are known to have occurred in only 10.5 per cent of the patients in whom no glandular involvement could be demonstrated at the time of operation. In the forty-six cases with local recurrences the glands were involved at the time of operation in 80.4 per cent, which tends to show that it is in the late cases that local recurrences are likely to develop.

The usual type of operation was employed in our series of cases. A wide removal of the skin and subcutaneous fat was effected, and both pectoral muscles removed. An extensive dissection of the subscapular and axillary lymphatics was made, and the glands and fascia in the deep infraclavicular triangle and a portion of the fascia covering the upper portion of the rectus muscle were removed. The skin incision, a slight modification of the Rodman incision, made it possible to close the skin edges in practically all cases.

The function of the arm following such operations is almost perfect. It seems to be impaired only in those patients who are timid and who fail, because of pain and discomfort, systematically to work the shoulder joint following operation. The scar of such an incision does not involve the axilla, and this region therefore is free from pain.

The results obtained in the 218 cases will be discussed under various headings.

GLANDULAR INVOLVEMENT

The axillary glands were found to be involved in 60.5 per cent of the cases, which clearly demonstrates that the majority of patients with cancer of the breast come to operation in a late stage of the disease. Of eighty-six patients operated on before the glands were involved 64 per cent are alive from five to eight years after operation, with known recurrences in only six. Of 132 patients in whom the glands were found to be involved at the time of operation, 19 per cent are alive from five to eight years after operation and only three of these are known to have recurrences. Of the 218 patients grouped collectively without reference to glandular involvement, 36.7 per cent are alive from five to eight years after operation, with known recurrences in nine. The percentages of five-year cures obtained in this series is almost identical with that obtained in a previous group of 510 cases reported by Judd and me in 1914, in which 39.8 per cent were five-year cures, and no doubt it is a very fair estimate of the cures to be expected five years after operation. The percentages of five-year to eight-year cures in patients operated on with glandular involvement and of those operated on before the glands were involved, are strikingly different, 19 per cent in the former and 64 per cent in the latter. The involvement or non-involvement of the glands seems to be the greatest factor in the prognosis following operation.

TABLE 1

RESULTS OBTAINED IN 218 CASES IN WHICH OPERATION WAS PERFORMED

	Alive five to eight years after operation	Dead
Patients without glandular involvement 86 (39.5%)	55 (63.9%)*	31 (36.1%)
Patients with glandular involvement 132 (60.5%)	25 (18.9%)**	107 (81.1%)
Total—218	80 (36.7%)	138 (63.3%)

*Six recurrences.
**Three recurrences.
Total, nine.

In studying the effect of glandular involvement on the prognosis a very interesting fact was noted, which allows one to determine quite accurately, at the time of operation, the number of patients in a given series who will be likely to die within five years and those who will be likely to live five years; that is, it was found that a death may be expected to occur within five years for each patient with the glands involved at the time of operation. While this rule is not absolute it was found to be so nearly true in studying the prognosis from so many standpoints, when the question of glandular involvement was considered, as to make it a good and fairly accurate working rule. For instance, the glands were found to be involved in 60.5 per cent of our patients, and at the end of five years 61 per cent were dead; the glands were not involved in 39.5 per cent of the patients, and 39 per cent were alive. In eighty-six patients of the entire series no glandular involvement could be demonstrated, and eighty-five patients of the entire series were alive at the end of five years. The glands were found to be involved in 132 patients, and there were 133 deaths in the series at the end of five years. From almost any standpoint that this rule was applied it was found to be correct within a very small percentage. All of the patients with glandular involvement do not die, but the number who die when the glands are not involved at the time of operation seems to very closely equalize the number who live when the glands are found to be involved.

TABLE 2

FREQUENCY OF GLANDULAR INVOLVEMENT IN CARCINOMA OF THE BREAST AND ITS EFFECT ON PROGNOSIS

Patients		218
Glands involved	132 (60.5%)	
Glands not involved	86 (39.5%)	
Patients alive from five to eight years after operation		80
Glands involved	25 (31.2%)	
Glands not involved	55 (68.8%)	
Patients known to be dead		138
Glands involved	107 (77.5%)	
Glands not involved	31 (22.5%)	

SEX

All the patients in the series were females; therefore it was impossible to make a comparison of the results obtained in the two sexes. However, the group clearly demonstrates, as have other statistics, the great frequency of cancer of the breast in females compared with males.

AGE

The highest percentage of deaths occurred in the youngest and oldest patients, but in these the glands were involved in from 70 to 75 per cent, and this, and not the age, probably accounts for the high mortality in these groups. One hundred eight of the patients were over 50, and 110 were under 50. Forty-one and seven-tenths per cent of the patients over 50 are alive from five to eight years after operation, while only 31.8 per cent of the patients under 50 are alive for a corresponding length of time. Twenty-five and four-tenths per cent of the patients over 50, and thirteen per cent of those under 50 who had glandular involvement at the time of operation, are alive. The percentage of chance for cure seems definitely higher in patients over fifty years of age. Whether this was due to the age or to the cessation of menstruation in these cases could not be determined, as the results were almost similar for women who had passed the menopause and for those who were over 50. The highest percentage of cures occurred in the fifty-nine patients between fifty and sixty; 71 per cent of this group without glandular involvement are alive five to eight years after operation, and only 64 per cent of all patients without glandular involvement are alive; 28.6 per cent of this group with glandular involvement at the time of operation are alive from five to eight years after operation, and only 19 per cent of all patients with glandular involvement are alive. Also only 47.4 per cent of the patients from fifty to sixty had glandular involvement, while the percentage of the patients of the entire series with glandular involvement was 60.5 (Table 3).

TABLE 3

PERCENTAGE OF DEATHS UNDER AND OVER "50 YEARS"

		Alive from five to eight years after operation
Under 50	110 (50.5%)	
With glandular involvement	69 (62.7%)	9 (13.0%)
Without glandular involvement	41 (37.3%)	26 (63.4%)
		35 (31.8%)
Over 50	108 (49.5%)	
With glandular involvement	63 (58.3%)	16 (25.4%)
Without glandular involvement	45 (41.7%)	29 (64,4%)
		45 (41.7%)

MENSTRUATION

One hundred eleven patients of the series had passed the menopause at the time of operation; 107 were still menstruating. There is little difference in the percentage of cures in these two groups; 38.7 per cent in the former and 34.6 per cent in the latter are alive from five to eight years after operation. On the other hand, twice as many patients with glandular involvement at the time of operation who had passed the menopause are alive from five to eight years after operation as patients with glandular involvement who were still menstruating (24.6 per cent and 12.7 per cent). (Table 4.)

Table 4

RESULTS OBTAINED IN PATIENTS WHO WERE MENSTRUATING AND IN THOSE WHO HAD PASSED THE MENOPAUSE

		Alive from five to eight years after operation
Patients who had not passed the menopause	107 (49.1%)	
With glandular involvement	63 (58.9%)	8 (12.7%)
Without glandular involvement	44 (41.1%)	29 (65.9%)
		37 (34.6%)
Patients who had passed the menopause	111 (50.9%)	
With glandular involvement	69 (62.1%)	17 (24.6%)
Without glandular involvement	42 (37.9%)	26 (61.9%)
		43 (38.7%)

CHILD-BEARING

Fifty-five of the patients had never borne children; 157 are known to have borne one child or more. Forty-three and six-tenths per cent of the former and 35 per cent of the latter are alive from five to eight years after operation. If only the patients whose glands were not involved are considered, 75 per cent of the former and 58.3 per cent of the latter are alive. The glands were found to be involved slightly more frequently in patients who had borne children than in those who had not (61.8 per cent and 56.4 per cent).

Pregnancy.—Two patients had carcinoma of the breast during pregnancy; one died two years after operation and the other five years after.

Lactating Breasts.—Four patients had carcinoma in lactating breasts; and all died, although the glands were involved in only two. They lived one, two, three, and five years, respectively after operation.

ULCERATING GROWTHS

In twenty cases the carcinomas were ulcerating at the time of operation. These, of course, were extremely late cases. The glands were involved in 90 per cent, and seventeen (85 per cent) of the patients are dead.

LOCATION OF THE GROWTH

The growth was located in the upper and outer halves of the breast more than twice as often as in the lower and inner halves, 46.8 per cent in the upper half, 45.8 per cent in the outer half, 20.7 per cent in the lower half, and 17.4 per cent in the inner half. Involvement of the glands occurred most often in growths located in the outer half (64 per cent); the involvement was about equal in the upper and lower halves (about 55 per cent) and least in the inner half (39.5 per cent). The growth was found about three times as often in the upper outer quadrant of the breast as in any other quadrant; it was located with about equal frequency in the upper inner and lower outer quadrants; and least frequently in the lower inner quadrant,—five times less frequently than in the upper outer quadrant. The glands were found to be involved with about equal frequency (about 64 per cent) in cases in which the growth was located in the upper and lower outer quadrants; they were involved in 50 per cent when the growth was located in the lower inner quadrant, and in only 31.6 per cent when the growth was in the upper inner quadrant. Fifty-two and six-tenths per cent of the patients with the growth in the upper inner quadrant were alive from five to eight years after operation; 40.3 per cent with the growth in the upper outer quadrant; 36.4 per cent with the growth located in the lower outer quadrant; and 25 per cent with the growth in the lower inner quadrant. The mortality was highest in cases in which the growth was in the lower inner quadrant, and the percentage of cures was highest in cases in which the growth was in the upper inner quadrant. In the diffuse growths (sixteen), that is, the growths involving almost the entire breast, or the type which apparently develops on a pre-existing diffuse mastitis, the glands were involved in fifteen (93.7 per cent) of the patients at the time of operation; all of the patients with diffuse growths are dead. When the growths were centrally located (twenty-six), that is, around the nipple, the glands were involved in eighteen (69.2 per cent) of the patients; seventeen (94.5 per cent) of the latter are dead. However, of the patients with centrally located tumors whose glands were not involved eight (75 per cent) are alive from five to eight years after operation. (Tables 5, 6, and 7.)

Table 5

FREQUENCY OF INVOLVEMENT OF RIGHT AND LEFT BREASTS AND THE RESULTS OBTAINED, BASED ON THE BREAST INVOLVED

		Alive from five to eight years after operation
Right breast	103 (47.2%)	
With glandular involvement	43 (41.7%)	22 (51.2%)
Without glandular involvement	60 (58.3%)	11 (18.3%)
		33 (32.0%)
Left breast	113 (51.8%)	
With glandular involvement	42 (37.2%)	33 (78.6%)
Without glandular involvement	71 (62.8%)	14 (19.7%)
		47 (41.7%)

Both breasts were involved in two patients, both are dead.

Table 6

LOCATION OF CANCER—IN DIFFERENT HALVES OF THE BREAST

		Alive from five to eight years after operation
Outer half	100 (45.8%)	
With glandular involvement	64 (64.0%)	16 (25.0%)
Without glandular involvement	36 (36.0%)	23 (63.9%)
		39 (39.0%)

Upper half	102 (46.8%)	
With glandular involvement	57 (55.9%)	18 (31.6%)
Without glandular involvement	45 (44.1%)	27 (60.0%)
		45 (44.1%)
Lower half	45 (20.7%)	
With glandular involvement	25 (55.5%)	5 (20.0%)
Without glandular involvement	20 (44.5%)	13 (65.0%)
		18 (40.0%)
Inner half	38 (17.4%)	
With glandular involvement	15 (39.5%)	3 (20.0%)
Without glandular involvement	23 (60.5%)	14 (60.9%)
		17 (44.7%)

TABLE 7

LOCATION OF CANCER—IN DIFFERENT QUADRANTS OF THE BREAST

			Alive from five to eight years after operation
Upper outer quadrant	62		
With glandular involvement	40	(64.5%)	13 (32.5%)
Without glandular involvement	22	(35.5%)	12 (54.5%)
			25 (40.3%)
Upper inner quadrant	19		
With glandular involvement	6	(31.6%)	1 (16.7%)
Without glandular involvement	13	(68.4%)	9 (69.2%)
			10 (52.6%)
Lower outer quadrant	22		
With glandular involvement	14	(63.6%)	2 (14.3%)
Without glandular involvement	8	(36.4%)	6 (75.0%)
			8 (36.4%)
Lower inner quadrant	12		
With glandular involvement	6	(50.0%)	2 (33.3%)
Without glandular involvement	6	(50.0%)	1 (16.7%)
			3 (25.0%)
Centrally located	26		
With glandular involvement	18	(69.2%)	1 (5.5%)
Without glandular involvement	8	(30.8%)	6 (75.0%)
			7 (26.9%)
Diffuse	16		
With glandular involvement	15	(93.7%)	0
Without glandular involvement	1	(6.3%)	0
Not mentioned	4		
With glandular involvement	1	(25.0%)	0
Without glandular involvement	3	(75.0%)	0

Attachment of the Growth to the Skin.—In 38.5 per cent of the 218 cases the growth was mentioned in the histories as being attached to the skin. The glands were involved in only 53.6 per cent of these patients, and 29 per cent of these with the glands involved are alive from five to eight years after operation. In 61.8 per cent of 110 patients in whom the growth was not mentioned as being attached to the skin the glands were involved, and only 16.2 per cent of these patients with glandular involvement are alive. The prognosis seemed better in the series in which the growth was attached to the skin. In such cases the growth is usually found in the superficial portion of the breast; such growths attract attention earlier and earlier operation is sought. On the other hand, the prognosis seems less favorable if the growth is not attached to the skin, probably on account of the fact that the growth is more deeply placed and often not recognized until the glands are involved, or that the lymphatic drainage from the deeper portions of the breast is more active than that in the periphery.

LOCATION OF RECURRENT GROWTHS

In 97 patients we have a fair idea with regard to the location of the recurrences. The glands were involved in 75.2 per cent. In the 97 patients recurrences had occurred locally, that is, around the region of the operative scar, or locally and in some other region at the same time in 47.4 per cent. The glands were involved at the time of operation in 80.4 per cent of the patients in whom local recurrence had occurred, a fact which would tend to show that local recurrences are to be expected largely in late cases. One hundred and thirty-two patients had involvement of the glands at the time of operation; local recurrences are known to have occurred in thirty-seven (28 per cent). In eighty-six patients no glandular involvement was demonstrated at the time of operation; local recurrences are known to have occurred in nine (10.5 per cent) of these. Evidences of metastasis in other regions were present in all except eighteen of the patients with local recurrences.

In twenty-one (9.6 per cent of the entire series), or 21.6 per cent, of the ninety-seven patients the metastasis was in the lung, pleura, or mediastinum. The glands were involved in 71.4 per cent of these.

In seventeen (7.8 per cent of the 218 cases), or 17.5 per cent of the ninety-seven patients, recurrences occurred in the bones; in thirteen cases the involvement was in the spine; three had recurrences in the femur; and in one case the spine and femur were both involved. The glands were involved in 64.7 per cent of these cases.

Intra-abdominal recurrences were found in eleven patients (5 per cent of the entire series), or 11.3 per cent of the ninety-seven cases. The glands were involved in 81.8 per cent of these.

Three patients (1.4 per cent of the total number), or 3.1 per cent of the ninety-seven, had metastasis in the brain. The glands were involved in only one of these.

In six patients the condition recurred in the other breast. It was impossible to determine whether these recurrences were direct metastasis or whether a primary carcinoma had developed in the other breast.

RESULTS OF OPERATIONS

Primary Mortality.—Only one patient in the series died in the hospital, an immediate mortality of 0.4 per cent. This patient died of pneumonia and nephritis ten days after operation.

CAUSE OF DEATH IN PATIENTS KNOWN TO BE DEAD

One hundred four (75.3 per cent) of the 138 patients died from recurrences of the cancer; of twenty-three we have no knowledge of the cause of death or whether the cancer recurred; eleven patients died supposedly from disease other than cancer and without a recurrence, one of pneumonia, one of influenza, one of pernicious anemia, one of apoplexy, one of Bright's disease, one of cholecystitis, four of heart disease, and one of gangrene of both legs (thrombosis?). Nine of these patients were over fifty years of age, and two were under fifty. While these patients were recorded as having died from cancer, they probably should have been deducted from the deaths, as insurance statistics show that about the same percentage of persons of these ages die during

TABLE 8

CAUSE OF DEATH IN PATIENTS KNOWN TO BE DEAD

		Cases
Unknown, without knowledge of the presence of recurrence		23
With known recurrences		104
From disease other than cancer*		11**
Pneumonia	1	
Grippe	1	
Pernicious anemia	1	
Apoplexy	1	
Bright's disease	1	
Cholecystitis	1	
Gangrene of both legs (thrombosis?)	1	
Heart disease	4	
		138

*In four cases letters definitely stated that there were no recurrences to the date of death. In seven cases no mention of a recurrence was made in replies received.

**The ages of these eleven patients were 46, 47, 50, 55, 56, 59, 64, 64, 64, 67, and 73.

DURATION OF LIFE FOLLOWING OPERATION IN PATIENTS WHO DIED

Six (2.7 per cent) of the 218 patients died within six months after operation. By the end of the first year forty-six (21.1 per cent) were dead; by the end of two years seventy-six (34.9 per cent); by the end of three years ninety-two (42.2 per cent); by the end of four years 107 (49.1 per cent), and by the end of five years 120 (55 per cent); only five (2.3 per cent) died after five years. In thirteen cases (5.9 per cent) the time of death could not be ascertained. (Table 9.)

TABLE 9

DURATION OF LIFE IN PATIENTS WHO ARE KNOWN TO BE DEAD*

Of the 218 patients operated on—
6 (2.7 per cent) died within 6 months after operation
46 (21.1 per cent) died within 1 year after operation
76 (34.9 per cent) died within 2 years after operation
92 (42.2 per cent) died within 3 years after operation
107 (49.1 per cent) died within 4 years after operation
120 (55.0 per cent) died within 5 years after operation
5 (2.3 per cent) died after 5 years
Of the 138 patients who died—
6 (4.3 per cent) died within 6 months after operation
46 (33.3 per cent) died within 1 year after operation
76 (55.0 per cent) died within 2 years after operation
92 (66.7 per cent) died within 3 years after operation
107 (77.5 per cent) died within 4 years after operation
120 (87.0 per cent) died within 5 years after operation
5 (3.6 per cent) died after 5 years

*In thirteen the time of death following operation was unknown.

THREE-YEAR CURES

It is generally conceded that freedom from recurrence for three years does not constitute a cure. Five years' freedom from recurrence offers a much better chance for cure. In the series of 218 patients only 2.3 per cent died after five years. It was found that at the end of three years forty-eight (36.6 per cent) of the 132 patients whose glands were involved at the time of operation were alive, and that sixty-five (75.6 per cent) of the eighty-six patients without glandular involvement at the time of operation were alive. Regardless of glandular involvement, 113 (51.8 per cent) of the 218 patients were alive at the end of three years. Some of these patients had recurrences at this time and died later.

FIVE-YEAR CURES

At the end of five years twenty-nine (22 per cent) of the 132 patients in whom glandular involvement was demonstrated at the time of operation were alive, and fifty-six (65.1 per cent) of the eighty-six patients in whom the glands were not involved at the time of operation were alive. Regardless of glandular involvement of the 218 patients eighty-five (39 per cent) were alive at the end of five years. (Table 10.)

TABLE 10

THREE-, FIVE-, AND EIGHT-YEAR CURES*

Decade		Cases	Alive three years after operation	Alive five years after operation	Alive 5 to 8 years after operation
20 to 30	With glandular involvement	3	0	0	0
	Without glandular involvement	1	1	1	1
30 to 40	With glandular involvement	16	4	1	1
	Without glandular involvement	15	11	9	9
40 to 50	With glandular involvement	50	17	10	8
	Without glandular involvement	25	20	16	16
50 to 60	With glandular involvement	28	10	8	8
	Without glandular involvement	31	24	22	22
60 to 70	With glandular involvement	26	12	8	6
	Without glandular involvement	11	7	6	5
70 to 80	With glandular involvement	9	5	2	2
	Without glandular involvement	3	2	2	2
		218	113 (51.8%)	85 (39.0%)	80 (36.7%)
	Total with glandular involvement	132	48 (36.6%)	29 (21.9%)	25 (18.9%)
	Total without glandular involvement	86	65 (75.6%)	56 (65.1%)	55 (63.9%)

*In thirteen cases the exact date of death was unknown.

SIMPLE AMPUTATIONS OF THE BREAST FOR CARCINOMA

Simple amputations of the breast were performed for supposed mastitis in six cases; the condition was later reported by the pathologist as early cancer. Five of the six patients were traced. One is alive eight years after operation, two are alive seven years, and one is alive six years. One died four years after operation, but we were unable to ascertain the cause of death. The sixth patient was alive and without recurrence when last heard from, two years after operation. These six patients are not included in the series of 218 because radical amputations were not performed. The group, however, shows the excellent result which may be obtained when even incomplete operations are performed during the early stages of the disease; four (66.7 per cent) of the group are known to be alive and without recurrence for from six to eight years after operation, with a possibility that one more of the group is alive.

REMOVAL OF THE TUMOR FOR DIAGNOSIS BEFORE THE RADICAL AMPUTATION

In five patients in the series the original tumor had been removed for diagnosis from two days to two months before operation, and in one patient an abscess had been drained and a specimen removed for diagnosis eleven days before the radical amputation. Four of these patients (66.7 per cent) are known to be alive from five to eight years after operation. In four the tumor was removed for microscopic diagnosis, and a radical amputation was performed immediately. Three of these patients (75 per cent) are living and without recurrence from five to eight years after operation. The other patient is dead. The carcinoma in this instance, however, was of the diffuse type and was cut into during the removal of the tumor for diagnosis. The prognosis in cases in which the tumor is first widely removed for diagnosis is not necessarily worse than when a primary radical amputation is performed.

SUBPHRENIC ABSCESS*

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It is with some temerity that I present for your consideration a discussion of this uncommon and yet not rare surgical condition. I would feel more at home if I were able to call your attention to a group of cases rather than to only one of obscure etiology. As the clinical picture is varied, it will perhaps be worth our time to recall the aspects involved.

Subphrenic abscess is considered to be a suppurative process in more or less intimate relation to the under surface of the diaphragm. Authorities are inclined to include hepatic abscesses in that they develop similarly and require the same treatment. Piquand, in 1908, collected a series of 890 cases, of which 28 per cent followed ulcers of the stomach and duodenum, 21 per cent appendicitis, 15 per cent hepatic and duct lesions, 6 per cent intestinal diseases, and 30 per cent various other conditions. According to Barnard's masterly address, in a series of 76 cases observed at the London Hospital, 34 per cent resulted from gastric and duodenal ulcers, 15 per cent from appendicitis, 17 per cent from tropical and hydatid diseases of the liver, and 33 per cent from rare conditions, such as carcinoma of the pancreas, typhoid fever, pyosalpinx, ruptured gut, gall-stones, operations, splenic infarct, congenital cystic kidney, etc.

Heffinger, in 1912, suggested that appendicitis was the chief etiological factor. A review of the literature since 1908 strongly supports this view.

It would seem that subphrenic abscesses are not as common today as formerly. There are infrequent case reports and discussions. The use of the Röntgen ray in diagnosis and the employment of more advanced methods of drainage have apparently reduced the incidence of this condition as a complication of thoracic and abdominal pathology. As stated above, the case to be reported is apparently one of obscure etiology. The writer, furthermore, wishes to call attention to the fact that the retroperitoneal type may be evacuated through a posterior kidney incision, without rib resection.

A. K., white male, entered our local hospital August 30, 1920, under the care of our Clinic with the complaint of pain in the epigastrium and upper right side of the abdomen and nausea. The onset was sudden, four days before, at 4:30 p. m., while working in the field. The first and prominent symptom was pain, which became worse. The nausea increased, but there was no vomiting. On the day of admission, deep inspiration and coughing gave rise to discomfort.

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*Presented before the Soo Surgical Association at the annual meeting in Minneapolis, December 17, 1920.

The past history seemed to give a clew, as he complained of having had stomach trouble of an indefinite nature since he was young.

Examination. We found marked tenderness in the right hypochondrium. The muscular rigidity was board-like over the gall-bladder and epigastrium. The chest was negative, except for the presence of pleural crepitations in the lower right base. The urine was negative. The leucocyte count was 21,400. The temperature was 102°; pulse, 84; and respiration, 20. Marked pyorrhea was present.

Operations.—Immediate operation was decided upon. A high paramedian right rectus incision was made. The stomach, duodenum, gall-bladder, and ducts were thoroughly investigated, but disclosed no pathology. The liver was normal in position, above but not in close proximity to the kidney. A slight fullness was observed in the right retroperitoneal space. The incision was extended downward, and a normal appendix was removed. Closure was made. Further developments were expected.

During the seven days following operation the pain became more severe in the right lumbar region. There were intermittent attacks of chills and fever. September 9, the leucocyte count was 48,000. Repeated urine examinations were negative. Increasing dullness appeared in the right lower chest, which on the tenth day had reached the fourth rib anteriorly and the tip of the scapula posteriorly with the convexity upwards. Fluoroscopic and radiographic examination on the tenth day revealed the presence of a subphrenic abscess of moderate proportion. The liver was pushed down, and the diaphragm up. The liver became palpable two-finger breadths below the costal margin. The entire costal border was tender. There was moderate tenderness in the lumber region, but no edema or bulging. The exploratory incision had healed completely.

A second operation was done on the twelfth day, under novocain anesthesia, and a kidney incision was made. With little difficulty the pus was reached from below, without enterting the chest cavity. A large quantity of foul, liquified pus accompanied by a few bubbles of gas was obtained. Smear examination of the pus subsequently made showed colon bacilli and possibly streptococci.

A stiff tube of large caliber was inserted and the wound closed.

Profuse drainage occurred for two weeks. The lower right chest dullness decreased gradually. There was considerable pleural irritation, marked by coughing for two weeks. He was discharged October 9. When seen again, the later part of November, the recovery had been complete.

We are led to believe that this is a case of hematogenous infection with the focus in the teeth. The patient was instructed to have extensive dental attention.

HISTORY

The history of subphrenic abscess is similar to that of all surgical conditions. The first period is that of post-mortem findings, which ended with the clinical diagnosis of the condition by Barlow in 1845. It was he who pointed out the differences between pleurisy and subphrenic abscess. This second period ended when von Volkmann, in 1879, demonstrated that collections of subphrenic pus could be treated by surgical interference.

REGIONAL ANATOMY

According to Barnard four intraperitoneal and two extraperitoneal spaces are recognized:

Intraperitoneal.......	Right	Anterior Posterior
	Left	Anterior Posterior
Extraperitoneal.......	Right	
	Left	

The first four constitute the peritoneal subphrenic and the last two cellular space group. The former is divided by the falciform ligament into two spaces, a right and a left. Each of these is subdivided into a larger anterior and a smaller posterior space by the corresponding lateral ligament. The right extraperitoneal space is situated between the layers of the falciform ligament, and the left in the retroperitoneal tissue of the loin around the upper end of the kidney; therefore, transcribing, pus in these spaces should, according to some observers, produce signs indicative of the region involved.

I. The right anterior intraperitoneal abscess is situated between the upper surface of the right lobe of the liver and the diaphragm, with the falciform ligament to the left and the lateral ligament behind. In this variety the liver becomes adherent by adhesions to the diaphragm, thus shutting off the rest of the general peritoneal cavity. Pus is localized in the upper and posterior part of the recess, and, as the abscess grows, the diaphragm is pushed up, giving signs of compression of the right lung. This is the type which follows appendicitis. Should this fossa be infected by a slowly perforating gastric or duodenal ulcer, the picture is somewhat different in that the line of adhesions is formed by the great omentum and transverse colon, and the whole of the fossa is filled with pus and gas, while the liver is separated from the diaphragm and pushed upwards and backwards.

II. The right posterior intraperitoneal subphrenic abscess occupies the subhepatic pouch or the right renal pouch, a pyramidal space under the overhanging margin of the liver, and has for its boundaries the abdominal wall, which forms the base, the liver and gall-bladder above, the abdominal parieties and kidney behind, and the hepatic flexure of the colon below. The apex is formed by the upward slope of the left lobe of the liver. Swelling in the right hypochondrium and lumbar region is a sign of abscess in this location. This type may extend to the right anterior position or into the lesser peritoneal cavity.

III. The left anterior intraperitoneal abscess is also known as an anterior perigastric or a perisplenic abscess. This is bounded above by the diaphragm, behind by the left lobe of the liver, on the left by the spleen and on the right by the falciform ligament. This type is usually caused by a perforating gastric ulcer and invariably contains gas. The tumor mass characteristically involves the epigastrium and left hypochondrium.

IV. The left posterior intraperitoneal abscess occupies the lesser peritoneal cavity. This type is rare and is usually due to posterior perforation of gastric ulcer.

V. A right extra- or retroperitoneal abscess is situated between the layers of the coronary and other peritoneal ligaments of the liver. On account of the resistance offered by the chest, the pus accumulates in this space with the result that the diaphragm is pushed upwards, obliterating the compensatory space and compressing the lung, and the liver is pushed downwards and may be palpated two or more finger breadths below the costal margin. Infections from the right kidney, the posterior surface of the duodenum, and a retrocecal appendix are factors in the production of this type. The abscess may point between the layers of the falciform ligament in the epigastrium. Suppurating hydatids and tropical abscess are prone to produce this type.

VI. The left retroperitoneal cellular abscess is situated in a similar position as its counterpart described above, but as the space is smaller it usually presents early in the lumbar region. It has its origin from infection in the kidney, pancreas, descending colon, and lumbar glands. There are some signs of lung compression.

From the resume of Piquand, the right-sided abscesses out-number the left-sided. The intraperitoneal types are six times more frequent than the extraperitoneal.

Clinically, two forms are recognized: (1) without contained gas,—simple subphrenic abscess; (2) with contained gas,—subphrenic pyopneumothorax. It would seem, however, that the latter name is misleading except where the pleural cavity is involved, either primarily or secondarily.

PATHOLOGY

The causes of this type of suppuration are often obscure. It may develop secondarily by extension from chest suppuration, such as empyema or abscess. Empyema is, however, more often the result than the cause. Direct traumatism to the chest and upper abdominal wall is held as a possible cause. The consensus of opinion is that the vast majority are due to lesions of the appendix, ulcers of the stomach and duodenum, and hepatic and nephritic infections.

Why pus should collect below the diaphragm has been variously explained. The most prominent theories which have been advanced are the following: (1) thoracic suction action during respiration; (2) lymphatic supply; (3) gravitation. The French have laid great stress on the last in that in the supine position the kidney and thick lumbar tissue produce an elevation between the subphrenic space and the pouch of Douglas in the female and the rectovesical pouch in the male.

In appendicitis the resulting abscess is usually on the right side. There are four routes of travel in infection from this source: (1) as a part of a general peritonitis, which should not be included in a consideration of a true localized subphrenic suppuration; (2) by slow extension up the lumbar peritoneal fossæ from the pelvis; (3) through the medium of the portal vein, as in pylephlebitis; (4) by lymphatic extension, (a) up the right retroperitoneal cellular tissue and (b) up the lymphatics around the deep epigastric artery to the falciform ligament.

Abscesses may contain pus, or pus and gas. In some cases of abdominal foci, bile, fecal matter, echinococcic hooklets, and pancreatic juice have been observed. Various organisms have been cultured from the pus, such as the colon bacili, which is the most frequent, streptococci, pneumococci, staphylococci, and anaërobes. The gas-contained type is most common in those arising from stomach and intestinal conditions. The presence of gas, however, is due, not only to communication with an air-containing viscus, but also to gas-producing bacteria of the aërobic or anaërobic type.

The infection of the subphrenic fossæ by the general circulation has been mentioned by several authors as a theoretical possibility, but there has been no instance reported in which this seems to have been the sequence of events. In the absence of a post-mortem examination of our patient, dental abscess would seem to have been the focus.

SYMPTOMATOLOGY

The signs and symptoms are somewhat obscure and vary according to the origin and position of the abscess.

I. *History.*—The onset is usually gradual. The sudden onset occurs usually in the gas-containing type. The primary disease may cloud the findings. During or following the convalescence form an appendectomy, the fever and quick pulse may persist, and after some time signs at the base of the right lung suggest that an abscess has formed under the diaphragm. This gradual onset contrasts with the sudden pain which often marks perforation of the stomach or duodenum. Again, if gradual, it may be the first suggestion of the existence of a more or less long standing gastric or duodenal ulcer.

II. *General Signs and Symptoms.*—These are often present and include pyrexia of a fluctuating type, tachycardia, anemia and chills. Leucocytosis is usually high and of the polymorphonuclear type. Gastric disturbances such as poor appetite and nausea occur. Loss in weight is rapid and even in operated cases is considerable.

III. *Thoracic Signs and Symptoms.*—If the location of the abscess is nearer the spinal attachment of the diaphragm than the, epigastrium these are chiefly present; in fact, these are the most common. There is dullness at the base of the chest, suggestive of pulmonary compression, which gradually increases upwards towards the scapula. Bronchial breathing occurs above the area of compression. The heart may be displaced. The physical signs resemble those of a pleuritic effusion, but are different in that the convexity of the dullness is upward. Should gas be present there are shifting areas of tympany on change of position. Dyspnea and non-productive cough occur in the unruptured type. Expectoration of a fetid sputum supervenes with rupture into a bronchus. Associated empyema is fairly common, especially in the neglected cases.

IV. *Abdominal Signs and Symptoms.*—The manifestations are abdominal if the abscess passes upward and presents anteriorly below the costal margin. There are tenderness, fullness, and pressure in the hypochondrium, epigastrium, or lumbar region. Movement of the ribs is restricted, muscular resistance occurs, and a tumor mass may or may not be palpable in the same areas. Owing to the formation of adhesions, these masses are immovable. When gas is present, the hepatic dullness may be obliterated and replaced by tympany. Pain is not usually a severe symptom and, as a rule, is pleuritic and transient.

V. *Rontgen Findings.*—The diaphragm is elevated, and the cardiohepatic angle is more acute. The lung area is clear except in the presence of secondary empyema. The liver density is increased in extent.

COMPLICATIONS

The complications of subphrenic abscess are extremely interesting and may conveniently be divided into two groups, thoracic and abdominal.

I. *Thoracic Complications:*

1. Pleurisy is usually complained of: This occurs without perforation of the diaphragm and is conceded to be due to lymphatic extension. The pleurisy may be fibrinous, serofibrinous, or even purulent. Occasionally pneumonia patches occur in the lung overlying the diaphragm.

2. Rupture into the pleural cavity: Perforation of the diaphragm by a retroperitoneal abscess usually occurs at the junction of the costal and lumbar fibers. The intraperitoneal usually perforates in the center. In either event the parietal pleura may be stripped up and become adherent to the visceral pleura by adhesions. Most frequently the pus escapes into the free pleural cavity and gives rise to free or localized areas of suppuration. Adhesions are more apt to form in those that rupture through the center of the diaphragm.

3. Rupture into the lung: This occurs where the diaphragm becomes adherent to the lung. Subsequently pneumonic patches may form, gangrene results and the abscess bursts into a bronchus. The expectoration of pus will give evidence of this unhappy complication.

4. Rupture into the pericardium: This has been observed only at autopsy. Fluoroscopic examination might prove effective in distinguishing this condition.

II. *Abdominal Complications.*—These usually are not as common as the thoracic variety.

1. Peritonitis: Rarely does a subphrenic abscess produce a generalized peritonitis. It seldom results from this condition. This might occur in the retroperitoneal types, rupturing into the general peritoneal cavity.

2. Rupture into the alimentary tract: If this occurs into the stomach there is vomiting of pus. This is considered fatal. The colon may become perforated, and the pus may be evacuated by that route.

3. Rupture into the bladder or ureter: These have been reported.

4. Spontaneous rupture through the skin: This usually occurs in the right hypochondrium and most of the cases are associated with cholelithiasis and cholecystitis.

DIAGNOSIS

The diagnosis is usually difficult. When no antecedent condition such as appendicitis, gastric ulcer, or other suppurative process has been discovered, the condition may remain unrecognized. A subphrenic abscess which has lifted up the diaphragm may be readily confused with empyema when depending on physical signs. Litten's sign is said to persist in subphrenic abscess and to disappear in empyema. Maydl states that the heart is pushed upward. On percussion and auscultation there is very little difference between a subphrenic abscess and an empyema, especially in the right-sided variety, unless there is gas tympany present.

Paracentesis has been described as an exploratory procedure of vast importance in these conditions. It should not be done until the chest has been radiographed. A needle of large caliber and a syringe should be used. The needle should first be introduced for at least three inches, beginning in the scapular line in the 10th interspace. If aspiration gives rise to no pus, the needle should be withdrawn and inserted consecutively in the ninth, eighth, seventh and sixth interspaces. Should these attempts be unsuccessful, aspirations should be attempted in the axillary line, from below up. Paracentesis is better done under the guidance of the Röntgen ray. Great care should be exercised in this procedure, as the presence of suppuration in either position is serious, and the artificial production of either one from the other should be avoided.

Too much emphasis cannot be placed upon the use of the Röntgen ray in the diagnosis. It should be used in appendectomy cases where the continued elevation of temperature or the presence of indefinite lower right chest involvement indicates the possible presence of suppuration. For the detection of gas, the lateral as well as the supine position is necessary to detect areas influenced by movement. Some cases are able to stand and in these vertical fluoroscopy is very valuable.

The exploratory incision may be looked upon as a necessary procedure in the diagnosis. Any anterior abdominal crisis suggestive of subphrenic abscess, whether with or without a mass, calls for incision. In these cases an incision properly undertaken is just as necessary a diagnostic procedure as is the paracentesis.

TREATMENT

The treatment of any such abscess is purely one of surgical drainage. Three different routes have been described.

1. The abdominal or lumbar incision. This is indicated in all cases where there is definite pointing of the abscess, either in the upper abdominal region or in the loin. When the abscess points in the anterior abdomen, it may be opened in the midline or parallel to the ribs without entering the peritoneal cavity.

2. The subpleural route. This incision consists of resection of the tenth rib in the midaxillary line and dissection of the diaphragm below the pleural reflection.

3. The transpleural route. According to the Röntgen findings and dullness, one or two ribs are resected, the pleura is opened, the upper layer of the diaphragm is sewn to the parietes, and the abscess opened. The resection should not be made higher than the seventh rib. Drainage tubes should be of large caliber and rigid to insure evacuation of pus.

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DISCUSSION

Dr. Frederick A. Dunsmoor (Minneapolis, Minn.) All of us would be very happy to get the result the essayist obtained in his case, in which it seems that even with the persistent application of his investigation, he did not discover the true condition at the time he removed the appendix. I have seen quite a number of these abscesses and must confess that nearly always I have discovered them while operating for another condition. In making a differential diagnosis we go back to what is generally given as the cause, namely, some appendiceal trouble. We must remember that in females about 20 per cent of appendices are behind the cecum, when we might go for our approach to such an abscess through the kidney pouch. I am sure Dr. Fisher reached the solution of his problem through this pouch. It does not seem to me that his case originated in the appendix.

The first case of this type I saw had such a wide opening between the stomach and the abscess that really it had come to be a receptacle for a large portion of the stomach contents. The fistula which connected with this subphrenic abscess was certainly as large in diameter as a quarter, and we were puzzled because this cavity was sometimes full and sometimes empty, as it discharged itself into the stomach.

All of the cases which I have seen as the result of gastric or duodenal perforation have had the location which Dr. Fisher gave, or the classical one, and only a small portion found to the left of the falciform ligament. The only one I saw on the left side followed an injury to the spleen.

One should be very cautious in approaching these abscesses by the transpleural route. It would be only in those cases in which I had discovered absolutely that there was an empyemic or a purulent condition already present in the pleural cavity.

I believe we jeopardize very much more the future of the patient than we do by careful dissection immediately below the ensiform appendix and getting at the abscess by walling off from below rather than from above. If, however, we have determined beforehand, by percussion or *x*-ray, that the pleural cavity itself is not involved, we know that if we drain such an abscess above as comes under the subphrenic type we are likely to make a contamination of the pleural cavity, which, I believe, is quite disastrous. The walling off protects only at the time, and the suturing of the membrane between the abscess and the lung tissue does not protect against contamination of the pleural cavity afterwards.

There is no question about the imperative demand for drainage. But I would say, once more, relative to those cases which communicate with the stomach, that I have found that the abscess beneath the diaphragm is fairly often contaminated by the products of digestion. I have sometimes cauterized these abscesses with pure carbolic acid and followed with alcohol, and then established the drainage. The septic condition is very marked, and, if the drainage is made close to the costal margin, we have to do something to protect the lower abdomen from contamination from the abscess.

Dr. Peter A. Nestos (Minot, N. D.): During the past summer a patient from the northwestern part of North Dakota came to me complaining of pain in his right side. The first doctor he consulted diagnosed pleurisy and instituted treatment for pleurisy. The patient did not improve, and sometime later called another physician, who made a diagnosis of sciatica and instituted treatment for that. The patient still failed to improve and finally came to Minot. The condition proved to be a subphrenic abscess pointing below the rib margin in the right flank, and the treatment, of course, was obvious. The swelling was about as large as my fist and very much inflamed. The mistake on the part of the second physician was due to the fact that he made his diagnosis without undressing the patient, merely passing his hand over the region and finding a tender spot. After appropriate treatment the patient went on to perfect recovery, although the process was rather tedious, lasting five or six weeks.

Dr. Eric P. Quain (Bismarck, N. D.): I was interested to hear Dr. Dunsmoor speak of the great danger of infecting the pleura by the transpleural route. I believe that is a grave danger, for I have had it happen in my own experience. Nevertheless, I went after the next case of the same type I had in the same way, but a little more carefully. A subphrenic abscess will push the diaphragm close to the thoracic wall so that there is no pleural space present. After the needle has gone through the pleura and diaphragm, and pus is found, the needle must not be withdrawn. One should aspirate all the pus one can so as to reduce the pressure and then leave the needle in place to avoid infecting the pleura. The local anesthetic is then injected, and a rib resected. The pleura is loosened freely from the ribs above and below, and opened at the point where the needle transfixes it and the diaphragm. The margins of the pleura are sutured to the diaphragm and a tight pack of iodoform gauze is placed against the pleura all around to hold it firmly against the diaphragm. The needle is surrounded with gauze and still left in place until the next day. When the diaphragm is then opened there will be little danger of infecting the pleura.

I would like to relate an interesting experience I once had with this type of disease. A boy, eighteen years old, had a gangrenous appendix removed and the abdomen drained. He had a large amount of pus in the right abdomen. He seemed to get along pretty well for about ten or twelve days when he again developed pain, fever, and leucocytosis. We suspected subphrenic infection, but were not sure of it. We had watched him closely for a day or two, when all of a sudden one night he had a severe coughing and expectorated first some very foul pus and later a large amount of blood. When I arrived at the hospital, ten minutes later, he had coughed up an enormous quantity of blood. We gave him morphine and waited. The hemorrhage seemed to have stopped rather suddenly. The next afternoon the nurse reported that the patient was having another hemorrhage, and I was in his room within a few minutes and found him coughing up bright arterial blood, his mouth filled with clots and foam. The entire right thorax was full of loud coarse râles. The patient seemed near death, and I decided to do a desperate thing. Without any anesthetic I took a knife and cut into the pleura between the ribs and let air suck in gradually until the lung was collapsed. In a few minutes the hemorrhage seemed to be controlled. He developed a violent empyema, and at the time we drained the empyma, a few days later, we went through the diaphragm and drained the subphrenic abscess. After a stormy course of events during the next three weeks, he finally picked up and got well.

Dr. Fisher (closing): The case cited by Dr. Quain is of interest to me because it relates to hospital work. In the Cook County Hospital we had several types of retroperitoneal abscess, but I never saw a real retroperitoneal abscess in the right side. The focus of infection of my case must have been oral sepsis, because the patient did have a rather virulent pyorrhea. Outside of that I do not know of any focus of infection which could have given rise to his trouble.

ON SOME FUNCTIONAL TESTS OF THE HEART*

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Numerous methods have been put forth as measures of heart function. Kahn[1] has recently summarized nearly all tests. The list is formidable, and it would be time-robbing as well as unprofitable, to repeat it here. For discussion we have chosen three methods of testing heart function. Two were selected because of their clinical possibilities and vogue; the third was selected because it differs from the other two in its clinical applicability, and at the same time it is more comprehensive in its physiological reasoning.

Barringer's[2] method of which we have had little experience is based on the vasomotor reactions following exercise. It typifies the large group of postural, stair-climbing, hopping-on-one-foot tests. Barringer has observed that the time of rise in blood pressure following exercise is fairly constant in normal individuals, that is, when the individual stays within the normal limits of his power to work. Doing work beyond this power causes a delayed rise in blood pressure. In cardiac patients this delayed rise occurs far below the amount of work which can be done by a normal individual. It was likewise observed that it made no difference what group of muscles were used, the same reactions were obtained. Barringer used dumb-bells to obtain his foot-pound unit of work. The theoretical explanation for this phenomenon is not clear. It may lie in the vasomotor regulatory arc or in the increased adrenalin output following the flood of CO_2 production. The adrenalin constricts the splanchnic vessels, causing a rise of blood pressure in the peripheral circulation. This combined with increased cardiac output would explain the sudden rise following exercise. Criticisms of the test are (1) that there are psychic factors which may cause increased pressure, (2) that individuals differ in vasomotor response or cardiac output under exercise; (3) in that sense it is not a true measure of cardiac function, but merely a test of vasomotor stability. In looking over Barringer's reports one cannot help being impressed by their practical value. This would hold good particularly in a heart station where exercise therapy is employed and in which the test can be carried out by trained observers.

PEARCE'S TEST

Peabody[3] has called attention to the intimate relation between the functions of the lungs and the heart. He calls this association of function "the circulatory-respiratory mechanism." Pearce[4] adds to circulation and respiration the function of metabolism. These three functions he unites into a single physiological system. "Each of the functions of this physiological triad has a certain elasticity or what has been termed a factor of safety, and minor changes can occur in either circulation, respiration, or metabolism without serious effect. Changes in one are compensated for by adjustments in the other." Although there is a certain elasticity of function in these three, this elasticity or factor of safety is by no means equally present. Boothby[5] has shown that the time volume of the ventilation, the time volume of the blood flow, and the oxygen consumption by per unit of time, runs strictly parallel in man doing a progressively increasing yet a moderate amount of work. As metabolism increases by increasing the load of work the circulatory-respiratory factor falls down. The portion to give out first is the circulation. By a series of ingenious experiments Pearce has been able to show that as there is an increased demand for oxygen by the tissues there is a corresponding increase in the minute volume of air and the minute volume of blood. At a certain point in these tests there is noticed a superventilation of the lungs, which is a compensatory effort on the part of the respiration to take on the load of the circulation. In other words the heart has arrived at a period of activity in which it is unable to increase its output of blood. At the same time there is found a drop in the CO_2 pressure between the arterial and the venous blood. At this point the heart has signalled its failure to stay in the system. It has fallen down. In normal individuals the unity of the system works up to a certain point when the cardiac portion gives out. In the cardiac case the individual is living at the expense of the factor of safety of one or all of these functions. In other words, he is living at a constant level of cardiorespiratory function, which a normal person arrives at only under periods of strain. "The incapacity of such patients to do hard or sudden work is, on these grounds, quite understandable." And to quote Pearce further: " . . . . there is apparently no difference from the physiological standpoint between a patient with uncomplicated cardiac incompetence and a man working beyond the ability of the heart to vary its output directly with the metabolic needs of the body. In the one case the heart's weakness is so great that even the task of living is a strain. In the other the task of living at a high level of energy output throws a strain on the heart which it is not capable of maintaining for any period of time." Again, "Circulation, respiration and metabolism represent a physiological trinity, metabolism being supreme, but dependent absolutely on the functions of the others. As long as metabolism, ventilation, and circulation vary directly with each other, health and comfort are found. When they vary disproportionately they must be said to form no longer a unified trinity but rather a tragic trilogy."

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The technic of establishing these deductions is intricate and at present beyond clinical application. Furthermore, Pearce by no means demonstrates a test of function: he rather explains what happens when there is a call for oxygen delivery on the part of the circulatory-respiratory mechanism. If his methods can be considered a measure of function at all it is expressed in units of oxygen. In the athlete this call is measured in large units, say 3,000 ccm. of oxygen per minute; in the cardiac patient in correspondingly less units of oxygen per minute. Still the day may not be so far off when Pearce's, as well as his forerunner, Krogh's[6], methods in cardiac physiology will form the bases of tests in the daily routine of a well-equipped clinical laboratory.

THE VITAL CAPACITY TEST

Pearce's observations on the cardiorespiratory mechanism in health and disease inspires one with the sense of unity of the two mechanisms and their absolute dependence on each other. We now have arrived at the point where the discussion of the vital capacity of the lungs as measure of heart function may take on a new interest.

Despite the amount of work done on functional studies, our most essential way of estimating cardiac function is still the history of the patient's symptoms. Sir James McKenzie[7] has especially emphasized this in diagnosis. He criticises the purely laboratory methods, stating that "the trust in laboratory methods of diagnosis leads to the neglect of the patient's symptoms." The study of the patient's sensations as a test of cardiac efficiency is surely based on fundamental principles. All tests of heart function are really measures of cardiac reserve. The heart can perform considerable more work than is ordinarily demanded. The capacity for this additional work is called the *cardiac reserve*. When the heart function is impaired the first change is a reduction of the cardiac reserve. The heart is then less able to respond to effort, and certain sensations are experienced by the individual. McKenzie, by years of careful analyses of these sensations, found that dyspnea on exertion was the earliest evidence of reduced cardiac reserve. Even in health dyspnea occurs when the limit of cardiac reserve is approached. In impaired heart function, since the reserve is reduced, dyspnea occurs at an earlier period or at a lower level of effort. McKenzie concludes that "breathlessness occurring after an amount of exertion the individual was wont to do with comfort is the most common sign" of cardiac impairment. Hirschfelder[8] also states that "dyspnea is usually the earliest and most common sign of cardiac failure."

In our analysis of the history of 84 ambulant cardiac cases, dyspnea was the leading symptom in 62, or 73.8 per cent of the cases. In practically all breathlessness was the cause of limitation of activities. The majority stated they found it necessary to "stop short" because of shortness of breath. Other symptoms, such as exhaustion, nervousness, weakness, cough, dizziness, gastric distress, and precordial pain, were complained of, but the patient very rarely stated that he found it necessary to restrain his activities because of any of these sensations. We must conclude, therefore, that dyspnea is the symptom above all others that must be investigated in the cardiac history, and that from the tendency to dyspnea we may have an index of the functional state of the heart.

There are, however, two fundamental objections to the use of the history as a basis for estimating heart function. The first is the unreliability of the patient's statements of subjective symptoms. The second is the lack of a standard to measure the degree of dyspnea described by the patient. It is very probable that the recent studies in vital capacity of the lungs in cardiac dyspnea may aid in doing away with these objections. Peabody and his coworkers have pointed out the close association of cardiac dyspnea and vital capacity reduction. Recently we[9] have confirmed Peabody's[10] observations and have pointed out that the reduction of vital capacity closely paralleled the impairment of heart function. Thus by studying the patient's vital capacity we have a method of corroborating the history (1) in confirming the presence of exertion dyspnea, and (2) in measuring the degree of dyspnea. We likewise have a standard value in his vital capacity, reading which we may use it from time to time in order to determine changes in cardiac function.

The vital capacity test introduced two new features into cardiac functional tests. Barringer and Pearce bring out cardiac insufficiency by putting the heart to work. Vital capacity readings are done with the patient at rest. Pearce's explanation of cardiac insufficiency is based on the inability of the heart to deliver into the circulation enough gas to the tissues. The factor in the reduction of the vital capacity in heart disease is sought in inherent changes in the lung. It is a mechanical factor. Von Basch[11] and his pupils associated the problem of cardiac dyspnea with this mechanical factor. As was pointed out above, the most outstanding symptom and commonest complaint of cardiac patients is dyspnea. In our studies all cardiac patients who complained of dyspnea had reduced vital capacities. The more this symptom was pronounced the more reduced was the vital capacity. The mechanical explanation for the dyspnea is elaborated by von Basch as follows: Any change in pressure in the systemic circulation, from whatever causes, such as exercise or embarrassed left ventricle, causes back pressure in the right heart with engorgement of the capillaries of the lungs. Let us remind you that the capillaries are a part of the walls of the individual alveoli. This engorgement of the capillaries in the walls of the alveoli produces an increased volume of lung tissue and at the same time diminishes the individual alveolus' elasticity. The sum total of this decrease in the distensibility and contractability of the alveoli has a distinct effect on the amount of air which can be possibly sucked into the lungs. This state of decreased physiological elasticity von Basch has called "Lungen-starre," or lung rigor. The condition of lung rigor exists long before one can get râles at the base, and one of the end products of its mechanism is pulmonary edema.

In this connection Welch[12], in 1904, discussing his treatise on "Pulmonary Edema," published as early as 1878, makes this statement: "As is well known, it is absolutely essential for the integrity of the circulation and the continuance of life that each ventricle should pump into its artery the same quantity of blood in a given time. This is the central fact of the circulation, and is secured under normal conditions by regulatory mechanisms of the most perfect order. The disturbance implied by interference with this mechanism is profound, and hence, in accordance with my theory, pulmonary edema is practically unknown in previously healthy persons. Let, however, this mechanism be so disturbed that at each systole the right ventricle throws a little more blood into the pulmonary artery than does the left ventricle into the aorta, then it will not be long before there is a large excess of blood in the pulmonary vessels. What is, in the first instance, essential is not the absolute force of either the right or the left ventricle, but rather the relation between the two." To restate this, briefly: Any disturbance of balance in the two ventricles tends to engorgement of the pulmonary capillaries.

The cardinal points in this argument are then as follows: The central idea of cardiac physiology is the balance between the two ventricles. When you have a disturbance in this balance you have pulmonary engorgement. Pulmonary engorgement in its earliest stages induces lung rigor of von Basch, who explains cardiac dyspnea on the basis of lung rigor. Siebeck[13] explains reduced vital capacity in heart disease on the same principle. Peabody has shown the correlation of cardiac dyspnea and vital capacity. Our findings substantiate his claim.

These three methods indicate the variable and intricate physiological activities underlying cardiac pathology. Barringer measures heart function on vasomotor responses. Pearce expresses cardiac function in terms of gas metabolism. In the vital capacity test we study the heart as it expresses its balance or disbalance in physical changes brought about in the lungs. It is a matter of constant wonder to see a normal individual's vital capacity not vary 5 per cent from month to month; and again to see the cardiac patient show increased vital capacity from day to day as his heart improves or show diminished capacity as his heart grows worse. These observations, combined with the history of symptoms, have been made the basis for a clinical test which in its sensitiveness and simplicity is far above the average of the so-called functional tests.

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A PLEA FOR THE EARLY DIAGNOSIS AND TREATMENT OF CEREBROSPINAL SYPHILIS*

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Neurosyphilis if unchecked is one of the most disastrous diseases, yet only about 20 per cent of cases of syphilis show involvement of the nervous system.[4] This 20 per cent can be materially decreased by early diagnosis and treatment.

Warthin[1] has added much to our knowledge of the pathology of syphilis by demonstrating that the essential lesion of either late or latent syphilis is an inflammatory process, usually mild in degree, characterized by lymphocyte and plasma cell perivascular infiltration leading to fibrosis of the parenchyma. The gumma is an incident and not the essential lesion. In practically every case of latent syphilis Warthin found meningeal thickenings, practically always of the leptomeninges, usually focal; but in clinical cases of tabes, paresis, cerebral syphilis, and "toxic psychosis" they were larger, diffuse, and more marked. When this inflammatory process has proceeded to fibrosis and destruction of the parenchyma (the fiber tracts) of the cerebrospinal system, all our treatment will not restore the degenerated neurons.

The time to make a diagnosis of syphilis is when the patient presents himself with a sore. I realize fully that not all cases have primary lesions when they appear for treatment, yet it is wasting precious time when a patient has a sore to wait for secondary eruptions or for a positive Wassermann. Usually a dark field examination will make the diagnosis in ten minutes. This may seem to be a far cry from neurosyphilis, yet I wish to emphasize that the first physician who treats a syphilitic has a great responsibility for the future course of the disease in that patient.

It has been stated, on clinical grounds, that there are some strains of treponema that have an affiinity for nervous tissue, a positive neurotropism. Brown and Pearce[2] experimentally produced infection of the nervous system of rabbits using two strains of treponema, one from a mucous patch and one, a supposed neurotropic strain, isolated by Nichols. The series was too small to show any difference between the affinity of the different strains of treponema for the nervous system of the test animal.

As neurosyphilis is early a meningitis we may expect an early change in the composition of the cerebrospinal fluid. Wile and Marshall[3] found 16.1 per cent cases of primary syphilis and 34 per cent of cases of secondary syphilis showing a pleocytosis; 19 per cent of primary syphilis showed globulin increase, while 35 per cent of secondary syphilis showed globulin increase; 5.9 per cent of primary syphilis, 26.5 per cent of secondary, and 30.9 per cent of tertiary showed a positive Wassermann on the spinal fluid.

Wile and Marshall[3] also call attention to the fact that 73 per cent of the cases of syphilis that showed alopecia had coincident involvement of the nervous system, and that 71.4 per cent of the cases having an iritis showed cerebrospinal involvement.

They consider a cell count of over six to be a pleocytosis. The globulin increase was found to parallel the pleocytosis. Lumbar puncture is a relatively simple procedure and will afford more real information regarding the presence or absence of cerebrospinal disease than any other procedure. Every syphilitic should have a lumbar puncture and examination of the spinal fluid before discharge from treatment regardless of the blood Wassermann.

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The inflammatory reaction of the meninges to the treponema is characterized by the increase of cells and globulin in the cerebrospinal fluid. The cells are of the mononuclear type. Pleocytosis and increased globulin in the cerebrospinal fluid of a syphilitic are definite evidence of syphilitic process and call for intraspinal therapy.

Lumbar puncture is not a difficult procedure, but, needless to say, careful asepsis is essential. Personally I prefer to have the patient sitting and to puncture between the 4th and 5th lumbar vertebræ. Use a rather small No. 20 gauge needle and enter in the midline, having the spine flexed as much as possible. Note whether the fluid is under pressure and collect the fluid in two or three tubes, the first serving to catch any bloody fluid. The cell count should be done at once, using the ordinary blood-counting chamber. If the fluid is suspected to be contaminated with blood one can mix 0.5 c. c. of the fluid with an equal amount of 1 per cent acetic acid tinged with gentian violet. This will destroy the red cells and stain the remaining cells. If possible, bloody fluids should be avoided, as the cell count is rendered inaccurate. Cell counts of over six per cubic millimeter are considered as a pleocytosis.

There are a number of tests for increased globulin, but the easiest and simplest is the Nonne Layer 1 c. c. of spinal fluid over 1 c. c. of saturated aqueous solution of ammonium sulphate. Use a small test-tube and let it stand fifteen minutes. A white ring at the junction of the two liquids indicates an increase of globulin. At least one or more c. c. of fluid should be sent to the laboratory for a Wassermann test. I will not attempt to describe either the Wassermann test or the colloidal gold reaction. The chief function of the latter test is to differentiate paresis. In early neurosyphilis the colloidal gold test does not furnish any information not given by the cell count, globulin test, and Wassermann. The cell count and globulin test are very simple and can be done by anyone who can make a blood count.

I have laid no stress on the neurological findings, but do want to emphasize the fact that third nerve changes, especially pupillary inequalities, should cause a strong suspicion of syphilitic infection. I wish to cite a recent case:

N: male, white, aged 25, a farmer, married three years, no children. Comes complaining of dimness of vision and pain in the left eye for the past year. History, negative except four years ago he had a slight urethral discharge commencing three or four weeks after intercourse. This was diagnosed as a stricture, and internal urethrotomy performed. Physical examination, negative, except that the left pupil was larger than the right and fixed. Spinal puncture showed 75 cells per cmm.; globulin, three plus; Wassermann, two plus with 0.05 c.c. Blood Wassermann, plus minus, first examination; four plus, second examination three weeks after first examination. This case illustrates an undiagnosed untreated intraurethral chancre and an asymptomatic syphilis with definite involvement of the cerebrospinal system. Under systematic and intraspinal therapy the pleocytosis and globulin have decreased, and the Wassermann reaction is changing to negative with improvement of sight and a feeling of well being.

Early diagnosis and treatment of primary syphilitic lesions will decrease the incidence of neurosyphilis. The evil of waiting, in the presence of a primary lesion, for a positive Wassermann is illustrated in the following history.

Male, white, age 35, married, no children. On July 1, 1920, he had a sore on his upper lip, which had been present ten days when he saw his physician who took blood for Wassermann, which was reported negative July 10th; sore still present with adenopathy, fever, and malaise. July 15th a Wassermann was again taken, and July the 16th the Wassermann was positive and treatment commenced. Three 0.9 gm. neosalvarsan were given during two months, then without any blood Wassermann he was placed on mixed treatment; and on October 6th he complained of headache, some vomiting; on the 7th nerve paralysis, and paroxysmal pain over the right mastoid, which was opened October 20th, following which diplopia developed. November 9th lumbar puncture was done, cells four plus (not counted), globulin three plus, Wassermann four plus 0.2 c. c.; blood Wassermann four plus.

This case illustrated delay in diagnosis, insufficient treatment, lack of early lumbar puncture, and unnecessary operation. He has improved rapidly under treatment, though local treatment has been interfered with by marked sensitiveness to neosalvarsan with nitritoid crisis and delayed reactions.

These two cases illustrate the most glaring sins we are guilty of, and I wish to emphasize them:

1. Delay in diagnosis of syphilitic primary lesions.

2. Delay in commencement of systemic antisyphilitic treatment.

3. Insufficient antisyphilitic treatment.

4. Lumbar puncture not done on an acute syphilitic after treatment.

No knowledge whether there is cerebrospinal involvement or not.

With regard to treatment, I prefer the use of salvarsanized autogenous blood serum, the Ogilvie modification of the Swift-Ellis treatment. Fordyce[5] cautions against too frequent treatments or the use of too much arsphenamine as paralysis of the lower extremities may result, and he uses the original Swift-Ellis method. Stokes and Osborne[6] have compared simple spinal drainage following arsphenamine intravenously with salvarsanized serum intraspinally, and they find that the latter produces more rapid and permanent results.

Intraspinal therapy is a hospital procedure and, of course, a highly technical one requiring careful asepsis. We use the technic given in Kolmer[7] and so far have had no trouble and only good results.

In conclusion, I wish to emphasize that neurosyphilis is, to a great extent, a preventable complication of syphilis. Early diagnosis and treatment of syphilis will lessen the incidence of neurosyphilis. Lumbar puncture gives more real information regarding the presence or absence of cerebrospinal syphilis than all other neurological examinations. A cell count of over six, globulin increased with or without a positive Wassermann is, in a syphilitic, evidence of cerebrospinal involvement, even though other neurological examinations are negative.

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DISCUSSION

Dr. Harry T. Kenney (Watertown): As Dr. Gregory has said, there are more cases of neurosyphilis than we have any idea of, and we do not get the findings always from the blood. We have got to go deeper.

I am glad to have heard this paper because it deals with those cases where we have fallen down, and what he has said stimulates us to give them more careful consideration. In cases in which a diagnosis seems to be impossible, I believe we should make a lumbar puncture. We had one case in a man whom the older doctors here know very well. He suffered for three or four years before his real condition was diagnosed. When a lumbar puncture was made they discovered he had neurosyphilis.

It is very essential that the diagnosis be made in these cases. As Dr. Gregory has pointed out, a patient who always suffers will have a chance under heavy treatment to get better. These patients have got to go through a long course of treatment. If they do not get treatment you have one of two things: an idiot in ten years or a paralytic, and probably both.

STRICTURE OF THE URETERS FROM FOCAL INFECTION*

By H. G. Woutat, M. D., F. A. C. S.

GRAND FORKS, NORTH DAKOTA

Until a comparatively few years ago the number of cases of ureteral stricture reported was very small. The reason so few were found is because they were not sought for. The causes for stricture of the ureter, as classified at this time, were tuberculosis of the kidney involving the ureter, calculus, and trauma, such as might occur during labor or pelvic operations.

In recent years many more cases of ureteral stricture have been found because they have been properly looked for, and the cause for the great majority of these strictures has been some form of focal infection. The principal foci of infection are the tonsils, teeth, and sinuses. In young adults, and often up to middle age, the tonsils are probably the most frequent source of infection, but in later years the teeth are more often the cause of the trouble.

Hunner, of Baltimore, was the first man to call attention to the frequency of ureteral stricture and also to focal infection as its cause. When he reported his first fifty cases of stricture at a meeting of the Genito-Urinary Section of the New York Academy of Medicine, the burden of his opponents' discussion was that the essayist probably knew how to recognize ureteral stricture, but for any man to ask them to believe that he had seen fifty cases in his practice was placing a serious strain upon personal friendship.

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*Presented at the Thirty-fourth Annual Meeting of the North Dakota State Medical Association, Fargo, N. D., May 26 and 27, 1921.

Ever since that time Hunner has been getting more and more support from genito-urinary surgeons who have investigated stricture of the ureters, as to the etiology being very often some form of focal infection.

Focal infection, it must be remembered, does not only affect the ureters, but may affect other portions of the urinary tract as well, especially the urethra and kidneys. Many cases of urethritis are reported which cannot be attributed to Neisserian infection.

The pathology of stricture of the ureters is not very striking. There is a change of epithelium from the transitional type to the squamous type. The submucosa is infiltrated, and the muscle fibers undergo degeneration. If there is infection of the urine producing pyelitis and urethritis, there is likely to be a dilation of the ureter above the stricture and there may be a hydronephrosis due to the weakening of the walls of these structures.

The symptomatology of ureteral stricture is not at all definite. The patient complains of intermittent pain in the kidney region, or in the bladder, or, may be both; and there may also be frequency of and discomfort on urination at times. The stricture is usually found in an effort to locate the cause of the pain and urinary symptoms. The pain may be rather constant in the region of the stricture, which probably accounts for some of the patients being operated on for appendicitis or pelvic diseases.

The patient may have attacks of renal colic, which would lead one to suspect urinary calculus. Many cases have more or less discomfort in the lower part of the abdomen because most of the strictures are found in the lower end of the ureter. The reason for this is supposed to be that there is quite an extensive nest of lymphatic glands in this region near the bifurcation of the internal iliac artery.

If the discomfort in the lower abdomen is increased by riding or continuous jarring of the body, and, in addition to this, blood and pus are found in the urine, following an attack of renal colic, the evidence of urinary calculus is very strong, and yet *x*-ray pictures may show no shadow of stone, but in the attempt to pass the ureteral catheter one meets with an obstruction, and a small-sized catheter may have to be resorted to before the stricture can be passed. In some cases the catheter passes very easily, and, if one suspects stricture, it may not be discovered unless a waxed bulb catheter is introduced. On withdrawing this catheter, the wax bulb produces the characteristic hang, which one gets when investigating stricture of the urethra with a bulb sound. The passing of a ureteral catheter in a case of ureteral stricture is very likely to be followed in a few hours by a sharp attack of renal colic, which is caused by swelling of the mucous membrane in the stricture area, temporarily obstructing the passage of urine through the ureter.

The urinary findings are not at all characteristic, as, in some cases, the urine may be perfectly normal, while in others it may have become infected and contain pus and occasionally blood cells. Blood cells are more likely to be present if the patient has suffered an attack of renal colic.

The diagnosis is made with the ureteral catheter and the wax bulb catheter. *X*-ray pictures of strictured ureters often show a dilation of the ureter above the stricture. Tuberculosis of the kidney and ureter and calculus must be excluded.

The treatment consists of locating the focus of infection, if possible, and removing this and also in dilating the stricture with catheters or bougies.

As the stricture is produced by an infiltration, it is not always necessary to produce a great deal of dilation to relieve the stricture, as simply passing a fair-sized catheter sets up enough irritation to produce absorption of the infiltration.

The following are case histories of ureteral stricture, illustrating the different causes of stricture:

Case 1.—Mrs. E. A. M., aged 36; married. Family history negative.

Personal history: Eight years ago she had acute Bright's disease and was in bed three weeks. All of this time she had a great deal of bladder irritation with frequency of urination. At times she had considerable aching in the right kidney region. For the last few years she felt quite well, until October, 1920, when she began to have almost constant desire to urinate. There was no real pain, but soreness in the region of the right kidney and bladder. Since this, she has had more or less trouble with the bladder and soreness in the kidney region and nocturia three or four times a night. Her bowels are constipated; appetite, poor; sleeps well, as a rule, except for urinary disturbance; weight, about the same.

Examination: Pelvis, negative; urethra, slightly more sensitive than normal. A catheterized specimen from the bladder contains considerable pus. Culture shows staphylococcic infection; reaction, alkaline; specific gravity, 1,018; trace of albumin; no sugar; bladder capacity, normal; mucous membrane, normal;

right ureter opening, large and spurts stronger and more often than left; left ureter opening, normal.

January 14, 1920. Patient again cystoscoped, and catheters passed to pelvis of each kidney. The urine from the right kidney contains much pus, and the urine from the left kidney contains very few pus cells. Capacity of left kidney pelvis, normal. Capacity of right kidney pelvis, increased. Was unable to pass a No. 6 catheter to the right kidney, so used a No. 5, which passed with some difficulty. There was obstruction at about the brim of the pelvis. Pyelourelrogram shows dilatation of the kidney pelvis. The examination was followed by a few hours of severe renal colic. Tonsils submerged and looked diseased. Tonsillectomy was advised and was done on January 20, 1921. Both tonsils were diseased, especially the right, which contained free pus.

January 26, 1921. No. 6 and No. 7 catheters were passed through the stricture. The urine contains less pus. This catheterization was also followed by renal colic.

February 15, 1921. The patient returned feeling much improved, with a good appetite, no nocturia, and practically no discomfort of urinary tract. A No. 7 catheter passed quite readily. The urine practically is free from pus. I have not seen patient since.

Case 2.—September 7, 1920. Mrs. K. W., aged 55; married. She complained of irritation of the bladder. The urine contained much pus. The patient is poorly nourished, but has not lost any weight lately.

Examination: Chest, negative; abdomen, rather tender all over; pelvis, uterus in normal position, but rather tender over the tubes.

Prescription: Helmatol and lots of liquids.

October 22, 1920. The soreness in abdomen is about the same. The bladder irritation is slightly improved. The urine still contains considerable pus.

October 26, 1920. Cystoscopic examination made. The urethra is quite sensitive. The bladder capacity is eight ounces. The mucous membrane of the bladder is quite badly inflamed, especially at the base. The urine from the catheter passed to the left kidney shows pus, due to colon infection. A No. 6 catheter passed with difficulty on the left side. The opening of the ureter looks as though there might be stone in the ureter, but the *x*-ray shows no shadow indicating stone. The urine from the right kidney is normal. The patient had a number of bad teeth, which she was advised to have removed. This was done.

November 8, 1920. The patient is somewhat better, but not a great deal. The urine still contains much pus. Helmatol was continued.

December 12, 1920. A No. 6 catheter was passed, but unable to pass a No. 7. There was a stricture three inches from the ureter opening.

Diagnosis: Stricture of the ureter and pyelitis.

December 30, 1920. A No. 6 catheter passed, and a No. 7 passed, but with great difficulty.

January 13, 1921. Passed a No. 7 catheter quite easily.

January 26, 1921. Passed a No. 7 catheter, and lavage to the renal pelvis with silver nitrate, 1 per cent.

February 9, 1921. Passed a No. 7 catheter, and lavage of pelvis. Urine free from pus. The patient very much improved in appearance, and the abdominal soreness relieved.

Case 3.—December 24, 1920. Miss F. S., age 20

Family hiistory: She had two sisters die of tuberculosis, but was not around them much when they were sick.

Personal history: Had diphtheria four years ago and influenza three years ago. In the fall of 1920 she took cold and developed bronchitis. Had a little rise of temperature afternoons; felt tired, especially towards evening; got out of breath easily.

December 25, 1920. Began to have pain upon urination.

December 27, 1920. Unable to void. Had considerable pain in the region of the left kidney. The pain gradually became severe. The temperature went to 103°. The urine contained a small amount of pus. Tuberculosis of the kidney is suspected.

December 29, 1920. The patient was cystoscoped, and the ureters catheterized. A No. 6 catheter passed with difficulty on the left side. It was followed in a few hours by a severe renal colic.

January 3, 1921. Patient was again cystoscoped and a No. 7 catheter passed, followed by severe pain.

Diagnosis: Stricture of the ureter, four inches from the bladder.

Tonsils examination: The tonsils were submerged and appeared diseased. Tonsillectomy was advised, and was done on January 13, 1921. She went home for rest for three weeks. On her return she felt well, had gained weight, had no return of urinary symptoms, no afternoon rise of temperature, and no cough. She had no further treatment.

DISCUSSION

Dr. V. J. LaRose (Bismarck): Typical stricture of the ureter in this class of cases is usually associated with an irritability of the bladder. The condition may have extended over a period of weeks or months or sometimes years. The reason these cases are hard to diagnose is the fact that the urine in most of them is sterile, and cystoscopic examination has failed to reveal any sign of infection. It was not until Hunner worked out the problem of ureteral stricture due to focal infection that we have been able to handle these cases intelligently, as stated by Dr. Woutat. The problem is first to locate the lesion. The lesion may be confined to the ureter, or it may be in the bladder itself. The type usually found in the bladder is a condition that is being investigated and considered more and more by urologists through cystoscopic examinations, because it is what they are looking for; that is, the so-called elusive or Hunner ulcer. This is an ulcer of the bladder with an opening or openings in the mucous memberane of the bladder. They are sometimes pinpoint in size and have been continually overlooked. But in examining these cases we find a dense infiltration of all of the coats of the bladder wall under the so-called apparently harmless ulcers which cause the most intense distress. The only successful treatment for them has been resection.

In the cases of ureteral stricture due to chronic inflammation of the ureteral walls, the local treatment there is of no avail until the focal infection, the cause of this infiltration and infection of the wall, has been removed, and this, together with local treatment and dilatation of the ureteral stricture, relieving the back pressure, will bring about a cure. I repeat, many of these cases have sterile urine, while a great many others have infected urine at least in the later stages, due to urinary stasis brought about by the stricture.

Dr. R. C. Coffey (Portland, Ore.): This is a subject in which I have been interested by proxy, as it were, for I have never done much of this work. I have, however, been very much interested in Dr. Hunner's studies in connection with strictures of the ureter. Dr. Hunner's work is quite widely known to the profession, so much so that when members of the great medical associations see Hunner in attendance they begin to laugh. But I am inclined to believe that Hunner will make them laugh out of the other corner of the mouth. It is undoubtedly true that there is something in the work of Hunner, as the essayist has said. Every one is particularly fond of his own babe, and every man who advances any subject at all is an enthusiast and inclined to be over-enthusiastic. While Hunner is no exception to the rule, it is nevertheless true that it is this type of men who advance the science of medicine, and this type only. The man who has not the courage to face criticism, such as Hünner has faced on this question, does not get anywhere in advancing medicine. He simply stands still. Were it not for such men as Hunner we would be standing still far back of the line where we are today.

Dr. Woutat (closing): I have nothing further to add, except possibly that one naturally should go slow in concluding that all patients who present themselves with urinary symptoms should have their tonsils removed or their teeth extracted. Careful examination should be made, and one should be quite certain that it is a case of focal infection and locate the infection positively.

Question: Do these cases have frank hemorrhage?

Dr. Woutat: I have not seen a case with frank hemorrhage, though many of them have microscopic blood in the urine.

MISCELLANY

DR. JOSEPH MacDONALD

Dr. Joseph MacDonald, managing editor and publisher of *The American Journal of Surgery* and co-publisher of *The Medical Pickwick,* died suddenly in his office on January 7th of cerebral hemorrhage, at the age of 51.

Dr. MacDonald was born in Branchville, Sussex Co., New Jersey, in 1870. All his adult years were spent in medical journalism. He rose from office boy to manager in the office of the International Journal of Surgery. In 1905, after having received his degree in medicine, he resigned from that position to establish the Surgery Publishing Co. and the *American Journal of Surgery* (formerly the *American Journal of Surgery and Gynecology*). From the outset he associated with himself a New York surgeon, Dr. Walter M. Brickner, as the editor-in-chief, and the journal early acquired esteem through the high standard of literary critique it has maintained. In 1915, in association with Dr. Sol. Martin, of St. Louis, Dr. MacDonald established the *Medical Pickwick,* a monthly magazine of medical wit, humor, verse, history, and biography.

Dr. MacDonald was ex-president and, for many years, secretary of the American Medical Editors' Association, an organization in which he was deeply interested and in whose affairs he was an active and earnest factor.

An officer in the Medical Reserve Corps of the U. S. Army since 1909, upon our entrance into the war he was commissioned captain and, in December, 1917, major. Long before he was assigned to active duty, and continuously thereafter, he did great service to his country, by conducting in his own publications and in member journals of the American Medical Editors' Association, a very vigorous propaganda to stimulate physicians throughout the country to enter the military service. With the approval and assistance of Surgeon General Gorgas he prepared circulars and editorials setting forth the medical-officer needs of the growing U. S. Army, and striking epigrams and exhortations, to stir the conscience of laggard colleagues. During 1918 he was on active duty as a member, and then chairman, of the Army Medical Examining Board of New Jersey, and made an excellent record in the number of physicians he inducted into the service. Later he was appointed a member of the General Medical Board at Washington.

Dr. MacDonald was very active in Masonry and was Past Grand Commander of the Knights Templar of the state of New Jersey.

Dr. MacDonald had a very "magnetic" personality. He had a host of friends, within and without his profession, who will mourn his early death.

He is survived by a wife and sister, Mrs. W. C. McKeeby, wife of Dr. McKeeby, of Syracuse, N. Y.

GO VISITIN' 'ROUND*

If you're feelin' rather solemn,
Go visitin' 'round;
Try to rest that spinal column,
Go visitin' 'round.
Shirk your work and visit natur',
You'll become a better creatur'
Jest by visitin' 'round.

When you 'waken full of worry,
Go visitin' 'round;
It's your liver's in a flurry,
Haven't visited 'round.
Get in tune with natur's medley,
For your soul is sort o' deadly,
Just by visitin' round.

Routine duties are too wearin',
Go visitin' 'round;
Keep the nerves from over-tirein'
Jest by visitin' 'round.
Learn the joys of childish prattle
'Fore your bones begin to rattle
Jest by visitin' 'round.

Life seems sometime full of trouble,
Go visitin' 'round,
It will drive away this bubble
While visitin' 'round.
If you want to find Life's treasur'
Seek the things that give you pleasur'
Jest by visitin' 'round.

—Wan. O. Squill.

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*The author informs us that his poetic effusion is a reminder of Minneapolis Clinic Week, the fifth session of which will be held in April.—The Editor.

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OLD AND NEW DRUGS

DIGITALIS

The discussion of old-time remedies has been rather acute of late, and the medical profession is offering varied and sundry opinions as to the value of our old-time, and dependable drugs.

The first drug thus to suffer from criticism is digitalis, and the controversy over it hinges mainly on whether it is advisable to give digitalis to relieve a failing heart muscle due to an infectious disorder. There have been opinions for and against its use under such conditions. There is also a feeling that digitalis is often misused in certain other heart conditions, such as an aortic disease, but that it is of very great value in the average case of myocardial insufficiency; that it tones up the heart muscle as well as other muscles in many diseases due to exhaustion, many nervous diseases, for instance, like the commonly accepted types of borderline cases, the so-called neurasthenics, which in many instances are due almost entirely to cardiac weaknesses. That it has its value in treating people who are ill from mild infections in which the heart muscle becomes more or less involved is undisputed. And yet there has arisen a feeling of uncertainty about its true value, partly because digitalis is not always standardized in its preparation. Minnesota has taken its place in the world of medicine by the growing on the State Agricultural Farm a species of digitalis (now carried on commercially by a well-known chemist, Mr. Upsher Smith) which has been standardized so that it is entirely trustworthy.

In spite of all this, however, the criticism still continues as to whether digitalis should or should not be used under certain conditions. The editor is unable to determine or perhaps to pass judgment upon the advisability of digitalis in infections which affect the myocardium, a pneumonia infection which is accompanied by myocardial overstrain. Sometimes the patient is greatly benefited by large doses of tincture of digitalis in the standardized form, continued until the muscle has regained a part of its lost energy, but discontinued before any actual overdose has been given. In any event caution is to be observed.

STRYCHNIA

The second drug which seems to have come under the ban of the critic is strychnia. There is a popular impression that strychnia has always been regarded, not only by the medical profession, but by the lay people, as a cardiac stimulant. This has been disproved for many years. Its true value lies in the fact that it is a stimulant to the nerve cells, and therefore, if given in sufficient doses, it may stimulate energies which are temporarily in a state of suspension, but it does this through the nervous system. The idea of giving 1/120 grain, or even 1/60 grain, of strychnia is like using a homeopathic dilution. It has, under those circumstances, little or no value. It should be given as digitalis is given, with the idea of producing an immediate prop under the tissues which are likely to fall. Consequently, 1/20 grain is an ordinary dose. This can be given either by mouth, in tablet form, or hypodermically in this quantity three to five times in twenty-four hours without any damage. And in a case of lack of nerve force, where the nerve cells require stimulation, the dose may be carried up safely to 1/5 grain at a time.

CAMPHOR

Another drug which has been looked upon as a life-saver by a few men in the medical profession and now wholly discredited is camphor. For years we have been hearing about the value of hypodermic injections of camphor oil or some other of its near substitutes in order to keep the flagging heart going. It has been the belief of a few that camphor would prove a wonderful stimulus following collapse from operations or shocks. The weight of evidence goes to prove that this contention is absolutely without foundation. That camphor is a drug that has no medical value was conclusively shown by a paper read by Dr. Richards at the last meeting of the Minnesota Academy of Medicine. Dr. Richards detailed his experiences in association with Dr. Morris in the use of camphor in clinical cases which were carefully selected and in which they had hoped to get some accurate information as to its value. Animal experimentation was also carried on to show the necessity of giving large doses of camphor before even convulsive movements were noticed. Most of the cats used for experimental purposes died from lethal doses of camphor. It seemed quite evident, after hearing expressions of opinion of medical men in general and those who were at the meeting, that camphor was dead, buried, and its tombstone erected. Out of the wreck, however, they did admit that spirits of camphor is largely used by women who snuff it to prevent colds or inhale it to stimulate them, and as long as the fumes of the alcohol go up their nostrils they certainly derive some benefit from it.

The president of the Academy (Dr. Staples) remarked that the medical profession seems in a bad way. Now that they have denied the virtue of digitalis and the value of strychnia, and have interred camphor, what will the medical profession do for a stimulant? Nothing is left for them but whiskey, and that they are unable to get. It is time, therefore, that someone either controverted these accusations against the old-time favorite drugs or find safe substitutes. The difficulty lies in the fact that we are seemingly willing to discard our old remedies and to adopt new synthetic products in whose virtue we have no confidence and of the composition of which we have no knowledge. It seems wise to infer that, given an old-time remedy that may be used in small enough doses to affect a certain tissue, it would be much safer for the practitioner than to fill a patient full of the newer preparations of which we have insufficient knowledge. The great danger lies in the adoption of new, strong, and unknown remedies, while we can give our patients small doses of something that we have knowledge of and in that way do them no harm, even if we do them no good; for nature, a good constitution, and the personal power of resistance are the main factors which keep the patient alive, and it is only the occasional drug in an occasional emergency that is at all helpful.

INFLUENZA

The report comes to this country through the daily press that London, Paris, Moscow, and other European cities are suffering from a fresh epidemic of influenza, that new cases are arising every day, and that a fairly definite mortality accompanies the invasion of the epidemic. Quite naturally if it occurred in London and Paris it would soon reach the Atlantic shores, consequently, New York has begun to investigate the sources of the epidemic. A large number of cases were reported to the health departments in the coastline cities and it is only a question of hours when the disease may reach the middle and interior states.

The fact of the matter is that we have never been free from influenza in some form since the original epidemic in 1918 and 1919. It is true that the disease has been modified, and also it has passed through most of the organs and tissues of the body in one form or other and evidently has spent most of its energies on the nervous system. The present epidemic is largely of the air passages, consequently we may expect to hear of a large number of deaths from pneumonia and also from other bronchial diseases. Most of our patients who have had influenza, even though two or three years ago, are susceptible to a new epidemic, although the course of the disease is usually milder.

The one factor which remains unanswered is that most of the people with respiratory disorder continue to exhibit symptoms either of the throat, the bronchial tubes, or in some cases, of the smaller bronchi for a period of three years or more. These are not exceptional cases. Patients complain of colds, fresh colds every few weeks. They have an irritated throat, an irritation of the bronchial mucous membrane, a little harsh breathing, and a moderate temperature, which lasts from a few days to a few weeks, and then slowly and gradually subsides. Nothing seems to do them very much good except rest, quiet, and food. Those who are obliged to work, who find it impossible to go to bed and stay there under care, seem to get along fairly well. They sometimes may be accused of working off their cold, la grippe, or influenza. At all events, they have about as easy a time as those who are congenitally susceptible to bronchial or mucous membrane irritations. This fact has been observed by the doctors in the country who, during the epidemic, were obliged to work, and they often worked under great stress and with high temperatures, sick themselves, as they were, with influenza, driving out in midwinter and exposing themselves to all kinds of danger. Fortunately, they were able to withstand the attacks except in a few instances. Not many physicians died who were working under great pressure while suffering from the disease. There must be something, then, in the structure of the individual that either prevents the attack from being serious or carries the patient along by an individual resisting power to the point of recovery.

It is claimed that occasional cases of tuberculosis have developed. That was probably true only in those who had concealed tuberculosis and, with a fresh infection, a starting up of the old spot that was quiescent; a comparatively few cases of tuberculosis have been recognized.

The greatest crippling, however, that influenza has caused in the last four years, is through the nervous system. Now that it is changing to the respiratory tract, we may expect that the epidemic will be modified and that the number of deaths will not be more than is normal under ordinary conditions. Nothing seems to stop the disease. It may be found in any type of individual. No one can anticipate the consequences which may follow. There have been a few cases recorded in which tonsillitis or a throat infection lasting three or four days is followed by sudden death, wholly unexpected and probably without any preventative measures being employed; that is to say, no one knows what an attack of influenza may bring about.

These colds should not be treated lightly, however, and everyone who has a temperature of 101° or even less, with sudden onset of aches and pains, should be promptly put to bed and cared for and should remain in bed for three days after the temperature has become normal.

What prevention can one take? Proper hours of work and play, sufficient food, and, mainly, sufficient rest and the avoidance of crowds, together with a clearing out of the gastro-intestinal tract and the drinking of abundance of pure water.

MUNICIPAL MILK CONTROL IN MINNESOTA

Health authorities have long recognized the importance of safeguarding milk, and as a result milk ordinances have been in effect for years in the larger cities of the country. In the smaller cities this matter has received but little attention until recently. The State departments in Minnesota interested in milk control are not in a position to provide the detailed supervision necessary to safeguard properly the milk supplies of the various municipalities in the state. This is largely a local problem, and must be controlled by local authorities under State direction.

A survey made in 1917 by the Division of Sanitation of the State Board of Health showed that only three cities in the state, exclusive of cities in Class 1, were providing effective supervision of their milk supply. A number of cities had, at some time in the past, adopted a milk ordinance, but had made practically no attempt to enforce it. In all of the cities a large percentage of raw milk was obtained from untested cows. It is estimated that 15 per cent of the dairy cattle in the United States are affected with tuberculosis; in certain areas in Minnesota even a higher percentage has been found in the dairy herds. The dangers from such milk supplies, especially to children, are apparent if statements of investigators and authorities, such as the British Commission, the German Commission, Park and Krumweide, and Dr. Kiernan of the U. S. Department of Agriculture, are accepted. The conclusions of these investigators differ somewhat, but the most conservative opinion from any of these sources shows that at least 7 per cent of all tuberculosis in humans, and as high as 25 per cent of that in children under sixteen years of age is of the bovine type, contracted from dairy products obtained from tuberculous cows.

A study of the milk ordinances in the cities where difficulty was encountered in their enforcement showed a great lack of uniformity in their requirements. Many of them were not practical or enforcable, and did not provide the necessary legal authority to insure proper control. In order to establish uniformity and to assist cities which desired to pass milk ordinances, the various state departments interested in milk control drafted an ordinance adaptable to municipalities in Minnesota not in Class 1. This ordinance was prepared and approved jointly by the Division of Dairy Husbandry, University of Minnesota; the State Live Stock Sanitary Board; the State Dairy and Food Department; and the State Board of Health.

The ordinance provides for two classes of milk, namely, raw and pasteurized, and outlines the requirements which each grade shall meet. It further provides that a veterinarian shall be appointed as dairy inspector, under the supervision of the local health officer who has charge of the enforcement of the ordinance.

Following the drafting of the ordinance, a campaign was started to encourage as many cities as possible to adopt this ordinance. Representatives of the various state departments met with local organizations and officials to discuss the importance of a safe milk supply and to explain the various provisions and requirements of the ordinance. When a city had passed the ordinance, assistance was also given the local officials in its enforcement. As a result of this campaign, milk ordinances are now in effect in all but eight of the cities in the state with a population over 5,000. During the past two years, approximately one-half of the cities with a population between 3,000 and 5,000 passed the ordinance, and it is under consideration by the authorities in a large number of the remaining cities. City councils have appreciated the importance of the ordinance and, in most instances, have appropriated sufficient funds to enforce the ordinance. A marked improvement in the milk supply has been the result in practically every city following enforcement of the ordinance. In several instances from 10 to 15 per cent of the cows supplying milk to a city were condemned on account of having tuberculosis. These animals were quarantined and killed under direction of the State Live Stock Sanitary Board, and the owner was paid three-fourths of their appraised value.

The field inspections have brought about a marked improvement in the sanitary conditions at the producers' dairies, and in the methods of production and subsequent handling of the milk. A few cities have installed laboratories and undertaken routine bacteriological examinations. Frequent chemical analyses by the dairy inspectors have practically put a stop to the adulteration of milk by watering or skimming, and sedimentation tests have resulted in a cleaner product. It has been noted also that the ordinance has not in a single instance resulted in an increased price of milk to the consumer or caused a shortage in the supply.

Local officials and others interested in the health supervision of local milk supplies can obtain information from the Minnesota State Board of Health, Division of Sanitation, Minneapolis, Minn.

REPORTS OF SOCIETIES

TWO LIVE MEDICAL SOCIETIES

A COUNTRY SOCIETY

The Devils Lake (N. D.) District Medical Society, of which Dr. G. F. Drew, of Devils Lake, is secretary and Dr. J. F. Roberts, of Cando, is the new president, is at least endeavoring to get out of the ruts of the deadly dull medical society; and, moreover, it has the public interest in sight.

At the society's annual meeting, held last March, in Devils Lake, the public was invited to hear a discussion on cancer, and about 300 laymen met with the society in the court house and listened with great interest to three papers as follows:

1. What the Public Should Know About Cancer.—Dr. W. F. Sihler, Devils Lake.
2. What the Doctor Should Know About Cancer.—Dr. W. D. Jones, Devils Lake.
3. What the Graduate Nurse Should Know About Cancer.—Dr. H. H. Beek, Lakota.

This audience learned many facts about cancer that were entirely new to them, and they got such an appreciation of the disease as will make them ready to assist in its eradication.

The society also saw the value of an open meeting of this character and will hold more such meetings this year.

The annual banquet was a jovial affair and the majority of the toasts were responded to by laymen, which is a further means of stimulating the interest of both the physician and his patient.

The list of officers elected is given in our news items.

A CITY SOCIETY

The Hennepin County Medical Society is the largest county medical society in the Northwest, and for a number of years has been doing splendid scientific work. It has a weekly special study meeting, held at the noon hour every Wednesday; and its monthly meetings are held on the first Monday evening in each month. Its February meeting, held on the 6th inst., was devoted to a symposium on the work done at the City's tuberculosis sanatorium (Lymanhurst) for children. Thirteen brief papers were presented by the members of the staff of the hospital and their associates, and the discussions on the same were opened by eight specialists in tuberculosis, five of whom were superintendents of state sanatoriums for consumption.

The papers and the discussions lasted but two hours, a marvelous piece of work.

The value of such a meeting to the profession is, indeed, very great.

The new president of the Hennepin County Society, Dr. A. E. Benjamin, is seeking, as every new president should, to arouse increased interest on the part of the membership and to develop the latent power of every member. With this end in view the following circular letter was recently sent to every member, the sheet having suitable blank space for writing replies:

> HENNEPIN COUNTY MEDICAL SOCIETY
>
> Dear Doctor: In order to arrange the programs for this year so that they will be of the greatest benefit to the largest number of members of the Hennepin County Medical Society, we are asking you to assist us by answering the questionnaire and returning to the Secretary, Dr. R. T. LaVake, 910 Donaldson Bldg., at once.
>
> 1. What in your opinion are the most vital questions confronting the medical profession today?
> 2. Give six or more scientific subjects of papers in the order of their importance that should be considered by the Hennepin County Medical Society this year.
> 3. Give four National, State, or Municipal questions in the order of their importance that should be discussed during the year.
> 4. What suggestions would you offer to improve the noon-day meetings of the Society?
> 5. What constructive criticisms have you to offer relative to the monthly meetings?

If there are societies in this field, as we are sure there are, doing as good or better work than the two named above, their secretaries or presidents will confer a favor upon the profession by reporting their methods through the columns of The Journal-Lancet.

NEWS ITEMS

Dr. E. J. Pengelly has moved from Ironton to Duluth.

Dr. J. Allen Smith has moved from ~~Norman~~, N. D. to Minot, N. D.

Dr. H. T. Ground, of Virginia, was married last month to Miss Doris Edwards, of Albert Lea.

Dr. Oscar Daignault, of Benson, has returned home from a trip to the Chicago and Eastern clinics.

Dr. D. W. Craig, of Sioux Falls, S. D., has been appointed physician of the state penitentiary fill the place made vacant by the death of Dr. W. E. Winsett.

Dr. M. M. Hursh, of Grand Rapids, is spending three months at Johns Hopkins in general surgical work.

Dr. A. W. Daniels, formerly of St. Peter, celebrated his ninety-third birthday at Pomona, Calif., last month.

The Waseca Memorial Hospital, a municipal hospital, which was erected at a cost of $65,000, was opened last week.

The Otter Tail County Public Health Association has asked the County Commissioners to employ a county nurse.

It is reported that the Broadwater Hotel of Helena, Mont., will be converted into a tuberculosis sanatorium for ex-service men.

The School Board of Minneapolis has supplied 80 Eskimo outfits to clothe the children in the open-air school of Lymanhurst Hospital.

The erection of a Governmental hospital for tuberculosis ex-soldiers at Fort Snelling, where several hundred patients can be cared for, is not at all improbable.

Dr. James C. Barswell, formerly with the Mayo Clinic, has located in Tulsa, Oklahoma. He will do eye, ear, nose, and throat work, and oral and plastic surgery.

Dr. C. O. Tanner, formerly a member of the Surgical Department of the Nicollet Clinic, of Minneapolis, has resigned and has gone to San Diego, Cal., where he will practice.

Dr. W. W. Brodie, of St. Louis, Mo., has been transferred to St. Paul, and is now in charge of the Aberdeen Government Hospital, taking the place of Dr. C. D. Osborne, resigned.

At the annual meeting of the City and County Hospital Association of Albert Lea, the trustees were authorized to enlarge the hospital, which is unable to meet the demands upon it.

Dr. Victor N. Peterson, St. Paul, was elected chief of staff at the annual meeting of Bethesda Hospital in that city at its annual meeting last month. Dr. K. C. Wold was elected secretary.

"Dr." S. R. Kirby, the "John Till" of Northern Minnesota and North Dakota was acquitted of the charge of manslaughter in his trial at Grand Forks last month. His patient is still dead, and the "Doctor's" mill will continue to run.

Dr. Finn Koren resigned his position last month as chief of staff of the Lutheran Hospital of Watertown, S. D., and was succeeded by Dr. A. J. Paulson of the Watertown Clinic. Dr.

H. J. Hammond was elected a member of the staff.

Dr. A. Shedlov has resumed practice at Gully after spending six months in Thief River Falls relieving Dr. A. M. Swedenberg for Government service. Dr. Swedenberg has resumed his old practice.

Dr. J. T. Shelland, of Ada, announces in the local paper of the village that he will be in his office every day from 5:00 to 6:00 p. m. for the free treatment of all in need of medical attention and unable to pay a physician.

Dr. F. E. Harrington, Minneapolis Commissioner of Public Health, has issued a warning of a possible epidemic of influenza, which is now raging in New York City, and can be easily transmitted by travellers to Minneapolis.

The County Commissioners of Pine County, at their recent annual meeting, reduced the salaries of the county physicians so much that some of these physicians will not serve as county physicians. Why not appoint chiropractors and thus teach educated physicians a lesson?

Dr. James Grassick, of Grand Forks, N. D., has given to the Grand Forks Historical Society the surgical instruments he carried in his pioneer days in that state, and the hand-made case he carried in his practice in Ontario. These are matters of "ancient history,"—not modern or medieval history.

Dr. J. Rufus Humphrey died last month in Bluemont, Va., at the age of 69. Dr. Humphrey practiced for a number of years in the iron region of Minnesota and Michigan and in Butte, Mont. He was at one time on the staff of the Shipman Hospital at Ely. He died on the farm on which he was born.

St. John's Hospital at Zumbrota reports that the past year was the most successful year in the history of the hospital. The nurses' home will be enlarged at an expense of $10,000. There are twenty-one pupil nurses in the training-school of the hospital. Good management is the secret of any hospital's success.

The following officers for 1922 were elected at the annual meeting of the Aberdeen (S. D.) District Medical Society held in Aberdeen last month: President, Dr. J. F. Cook, Langford; vice-president, R. D. Wilson, Aberdeen; secretary, Dr. C. E. McCauley, Aberdeen; treasurer, Dr. J. E. Bruner, Frederick.

Dr. P. M. Hall, Superintendent of the State Tuberculosis Sanatorium, and Dr. Robinson Bosworth of the Advisory Commission, will soon go to Washington to consult the U. S. War Veterans' Bureau about the erection of a hospital for tuberculous veterans at Walker. An appropriation of $500,000 will be sought.

The Cascade County Medical Society of Montana held its annual meeting at Great Falls, Mont., last month when the subject of credits and bad debts was thoroughly discussed, but without finding a remedy. Several members urged that medical men be elected to the legislature that suitable laws might be passed.

We commented editorially in our last issue on the address made by Dr. Raymond before the sectional meeting of American College of Surgeons in St. Paul, on the matter of unnecessary surgical operations. Dr. Raymond's remarks are now appearing in the country press of the Northwest to do as much evil as possible.

The death-rate from diphtheria in Minneapolis during the past three years was as follows: in 1919 7.4 for every 100 cases; in 1920 6.9 for every 100 cases; and in 1921 3.7 for every 100 cases. Early diagnosis, the increased use of antitoxin, and the absence of epidemic from milk are the probable causes of the low rate in 1921.

Dr. Woods Hutchinson, of New York, gave one of the weekly health lectures at Rochester on January 19. Dr. Blifuss, head of the Health Department of that city, has arranged a series of public health lectures to be given by local and visiting physicians during the winter months, and these have been meeting with marked success.

Dr. Burney J. Kendall was a pioneer physician in Olmsted County, Minnesota, and was a contemporary and friend of the elder Mayo. He died last month at Geneva, Minn., at the age of76, having made a national reputation and amassed a fortune by the sale of "Dr. Kendall's Spavin Cure"—for horses, not for men or women. His remains were buried at Rochester.

Dr. F. L. Adair, of Minneapolis; Dr. W. F. Will, of the Minnesota Public Health Association; and Mrs. J. R. Brandrup (formerly Dr. Hopkins, of St. Peter), now of Mankato, are the medical members of the new Minnesota State Advisory Board on Maternity and Infant Hygiene, which will begin work when the Shepherd-Towner bill begins to function.

The Park Region District and County Medical Society elected the following officers at its annual meeting last month: President, Dr. A. C.

Baker, Fergus Falls; vice-president, Dr. John Hoffman, Henning; secretary-treasurer, Dr. T. S. Paulson, Fergus Falls; censor, Dr. A. H. Haskell, Alexandria; delegate, Dr. Paulson; alternate, Dr. J. A. Freeborn, Fergus Falls.

The Sioux Valley Eye and Ear Academy held its annual meeting in Sioux City, Iowa, on Jan. 24, with an attendance of more than 40 of its 100 members. A fine line of papers was presented, and the following officers were elected: President, Dr. J. M. Patton, Omaha, Neb., vice-president, Dr. J. B. Naftzger, Sioux City, Iowa; secretary-treasurer, Dr. L. N. Grosvenor, Huron, S. D.

At the annual meeting of the Devils Lake (N. D.) District Medical Society, noticed in another place the following officers were elected: President, Dr. J. F. Roberts, Cando; vice-president, Dr. D. Lemieux, Leeds; secretary-treasurer, Dr. G. F. Drew, Devils Lake; delegate, Dr. J. P. Widemeyer, Rolla; alternate, Dr. G. J. McIntosh, Devils Lake; censor, Dr. J. G. LaMont, Dunseith.

The Women's Auxiliary of the Hennepin County (Minneapolis) Medical Society, which was organized eleven years ago, now has a membership of 227. Its philanthropic work in 1921 was a large one, most of it being done at Hopewell Hospital for the tuberculous, where the nurses' home was furnished almost entirely, and the 200 patients in the hospital were given a large amount of clothing.

Dr. W. T. Grenfell, known the world over through his work in Labrador, will be in the Twin Cities next week. He will address a joint meeting of the Hennepin and Ramsey County Medical Societies in the amphitheater of the Chemical Building at 8 p. m., Friday, February 24th. He will tell especially of his work in combating the principal diseases met among the people,—beriberi, scurvy, and tuberculosis.

Dr. R. O. Beard, of the University Medical School, has an article in the February *Pictorial Review* of New York in reply to one in the October issued by Dr. C. H. Mayo, of Rochester. Dr. Mayo's paper was on the public need for subnurses (100,000); that is, for nurses who will work for comparatively small wages. Of course, they would possess limited educational qualifications, and only a brief training in nursing. Dr. Beard combats this solution of the nursing problem with great vigor, maintaining that social justice demands the same grade of nursing for all classes. This, of course, must be paid for by public taxation or private contribution.

PHYSICIAN WANTED

In a Minnesota village of 450, with a splendid mixed German, Irish, Scandinavian, and American population. Nearest competition, 14, 14, 20, and 32 miles, respectively. Good consolidated school and four churches, fine new creamery; fine office and living rooms over the bank. Address 213, care of this office.

PRACTICE FOR SALE

A $10,000 practice in a town of 12,000 in Southern Minnesota with fine hospital. Can turn over industrial work that pays $150 a month and brings in more. Terms, $1,000 cash, covered by office equipment. Reason for selling, forming partnership elsewhere. Address 214, care of this office.

SCANDINAVIAN PHYSICIAN WANTED

A fine opening for a Scandinvain doctor in a Western Minnesota town of 1,800 with large territory largely Scandinavian. Only two doctors here at present, neither Scandinavian. Free office room in drug-store. For particulars address 215, care of this office.

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In a German community of 1,200 population in South Dakota, complete modern dental equipment and practice; modern hospital and complete *x*-ray outfit of physician at purchaser's disposal. Chance of a lifetime. Address 212, care of this office.

OFFICE, FURNITURE, INSTRUMENTS, ETC., FOR SALE

The office furniture, instruments, books, drugs, etc., of the late Dr. A. J. Murdock, of Minneapolis, are for sale at low prices. Address or call 3161 Columbus Ave., Minneapolis, or telephone, call South 0483.

LOCUM TENENS WANTED

Not later than March 1, a service man or recent graduate, preferably a general practioner who can refract. Address 207 care of this office.

TECHNICIAN WANTS POSITION AT MODERATE SALARY

Can do urinary, blood, gastro-in-testinal and tissue work and Wassermanns. Speaks, English, Norwegian, and German fluently, with a reading knowledge of French. Best of references. Address 209 care of this office.

LABORATORY TECHNICIAN WANTS POSITION

A young woman wants a position as laboratory technician preferably in the Twin Cities, either with a group of physicians or in a commercial laboratory. Experience: clinical routine laboratory bactriological and basal metabolism work. Best of references. Address 210, care of this office.

PHYSICIAN WANTED

A physician and surgeon for a live town in Northwestern North Dakota with an unlimited territory. Splendid opening for a young graduate interne properly recommended or for any good practitioner. Immediate opening, worth $7,000 to $10,000 yearly to the right man. Address 208 care of this office.

TISSUE DIAGNOSIS

Routine microscopic examination of all tissues removed by the surgeon is now demanded at every first-class hospital. It has been shown that as high as 20% of error in clinical diagnosis can be corrected by such examination.

There is no phase of laboratory work, however, that demands such wide experience and specially trained skill as tissue diagnosis. It requires a greater experience than any other branch of laboratory procedure, and it is in the borderline cases between malignancy and non-malignancy that careful judgment is necessary. Such experience and judgment cannot be obtained from books. Only years of work in practical pathology will give it. Here is one thing that cannot be left to the amateur, to the technician or to the weakly organized. ill-equipped laboratory.

To secure your confidence in our tissue diagnosis, we beg to call your attention to the following members of the staff of the National Pathological Laboratories who are responsible for the diagnosis in this field:

Dr. Ludvig Hektoen	Chicago, Illinois
Dr. Josiah J. Moore	Chicago, Illinois
Dr. Ralph L. Thompson	St. Louis, Missouri
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Dr. Ferdinand M. Jeffries	New York, N. Y.

We invite the patronage of every individual operator, and every hospital in the United States not provided with adequate facilities for this work.

Tissue sent to us in 10% formalin will be examined and report telegraphed within 24 hours on request. Tissue examination $5.00.

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Milk is the universal food. In some cases it is hard to handle because the acid stomach forms indigestible clots. This curdling may be overcome without altering the value of the milk. In chymogenized milk the casein is precipitated in flocculent particles. In this form the casein is easily digested. Where the whole milk is wanted, boil, let cool to 105 degrees F., and add Chymogen.

If whey is wanted, heat the milk to 105 degrees F., add Chymogen. When the curd is set, cut, drain off the whey, and use. Chymogen is from the Armour Laboratories.

MELLIN'S FOOD

The manufacturers of Mellin's Food have never been out of touch with the scientific feeding of infants as determined by medical specialists in this line; and they were the first to introduce maltose and dextrines, in serviceable form, to physicians.

Their business was established over fifty years ago, and from the first the Company has maintained the confidence of the profession. They have never sought to supplant medical men nor claimed to know more than physicians. They have, on the contrary, sought to obtain and combine the knowledge and experience of physicians, and to work out of this, through the best obtainable laboratory men, the best obtainable infant food.

Next to mother's milk, Mellin's is the best infant food.

THE FAIRVIEW HOSPITAL

The card of the Fairview Hospital, of Minneapolis, again appears in the columns of the LANCET, and how modest it is! "A modern, fireproof hospital, operated by the United Church Hospital Association." One more truthful word can be added to this description, and that word is *efficient.*

Fairview is a modern hospital; the building is beautifully located on the river bank; and it is splendidly constructed and equipped with modern hospital apparatus. The prices are moderate, and the service is high grade in every respect. Fairview is conducted by a church association to meet demands that cannot always be met by either private or public organizations.

Any information desired can be obtained by addressing the Fairview Hospital, Minneapolis.

SCHERING'S FIFTY YEAR JUBLIEE

Recently, there has been received in this country a souvenir volume commemorating the founding of the Chemische Fabrik auf Actien (vorm. E. Schering) of Berlin, on October 23, 1871.

This book, besides being a remarkable specimen of the modern printers' and book-binders' art, recites the wonderful development of this world-wide manufacturing concern from its humble early beginnings, as the still flourishing Berlin Pharmacy, "Gruene Apotheke," to its present heights.

It will be remembered that this Company is the original creator of such milestones in the progress of therapeutics as Chloralhydrate, Formalin, Urotropin, Beta-Eucaine, Medinal, Tonols (glycerophosphates of highest purity) Trikresol, Atophan, and many other universally known products, introduced to the medical profession and the drug trade of the United States by Schering & Glatz, Inc. The leading synthetic specialties have been manufactured by the latter in the United States for several years. The fifty year jubliee of the Schering Works is thus of such interest to physicians that it should not pass without suitable mention in these pages.

Congratulation and evidences of friendship were received by the Chemische Fabrik auf Actien (vorm. E. Schering) from all parts of the world, and we have no doubt that the best wishes of the medical profession of the United States are with this stalwart pioneer concern.

THE DEEDS LABORATORIES

A high-grade laboratory may make a good reputation with the medical profession of its home city or with the profession outside of its city or state; or it may gain the confidence of the whole profession, in both city and state and outside of the state. And such a laboratory may well be called *dependable.*

The Deeds Laboratories of Minneapolis are thoroughly dependable, and give a service that has gained the good-will of a very large number of physicians.

The modern laboratory is absolutely indispensable in the modern practice of medicine and with our present efficient mail service, it is almost as useful to the country as to the city physician.

The Deeds Laboratories, Besse Building, Minneapolis, will give any information about laboratory work for physicians that anyone may wish to obtain.

MEDICAL BOOKS

Mr. Arthur W. Isca, 621 Besse Building, Minneapolis, in his card on another page, gives the name and prices of a few new books in special demand by physicians; but Mr. Isca will supply any book wanted, wherever published.

Mr. Isca is doing a large business both inside and outside of the Twin Cities, and is always to be relied upon for prompt and efficient service.

ELECTROLYSIS FOR SUPERFLUOUS HAIR

When Mrs. Ella Louise Keller opened an office in Minneapolis several years ago, and advertised her business in THE JOURNAL-LANCET, medical men generally thought her somewhat of a humbug, but some had faith in her and sent her patients. Her business today comes very largely from physicians, some of whom take treatments, for the removal of warts and moles.

Her business is primarily the removal of hair from the face of women. An electric needle is inserted very deftly to the root of each hair and carries sufficient current to kill the hair. The process is not altogether painless, but anyone can stand the pain, and the hair is killed forever.

She has an office in the Loeb Arcade, on Fifth Street, and is doing a really scientific minor surgical work. She is worthy of confidence.

LISTERINE

The writer was in the office of one of Minneapolis' leading physicians the other day. As he entered, the telephone rang, and the doctor answered it. After a few words with a patient over the telephone, the doctor said; "Use Listerine, and keep it up till you feel better; it will relieve you." In a joking way, the doctor was asked if he could not write a better prescription than Listerine. He answered emphatically, "No, nor can anyone else for the purpose I prescribe it." And practically all physicians say the same.

Listerine is a non-poisonous and unirritating antiseptic, elegantly compounded, an unsurpassed wash for wounds, as a gargle or spray or douche, and for general use to allay inflammation of the mucous membrane.

It is a well-nigh universally used home remedy, and can produce no ill effects under any conditions. Physicians almost the world over prescribe it.

THE MURRAY CURE

There is a large class of drug addicts and alcoholics that the general practitioner has no desire to treat, for he knows they can be treated more successfully in a sanatorium. This condition of affairs made the private sanatorium both desirable and indispensable, and physicians recognize the fact.

The Murray Cure, of Minneapolis, is such an institution, and it has been in successful operation under the same management for over 25 years, always with a regular licensed physician as medical director. The institution asks medical men to send them their patients needing institutional care and treatment.

INTRAVENOUS MEDICATION

Intravenous medication has taken a strong hold on the medical profession, and its merits should be known to every general and special practitioner. It is not new in principle or mysterious in any respect. It is a method of reaching the seat of disease by remedies acknowledged to be either palliative or curative when administered in the old way.

What is the best way to learn about the intravenous medication and products? First, go to the modern text-book; second, read the literature appearing in the medical press; and, third, consult a reputable manufacturer of such products. Such a manufacturer is Geo. A. Breon Co., also have recently reduced their prices. They may be addressed at Kansas City, Chicago, or Atlanta.

RADIUM SERVICE

The use of radium in the hands of competent men is giving such splendid results that it is greatly to be regretted that its use by any other class, either the incompetent or the quack, should discredit it in the minds of laymen. Of course, it is not a cure-all, and it fails in cases where its application promises much. On the other hand, it cures or arrests disease when all other treatment has completely failed.

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My equipment enables me to give hydrotheapy and electric light and heat and other mechanical treatments when prescribed.

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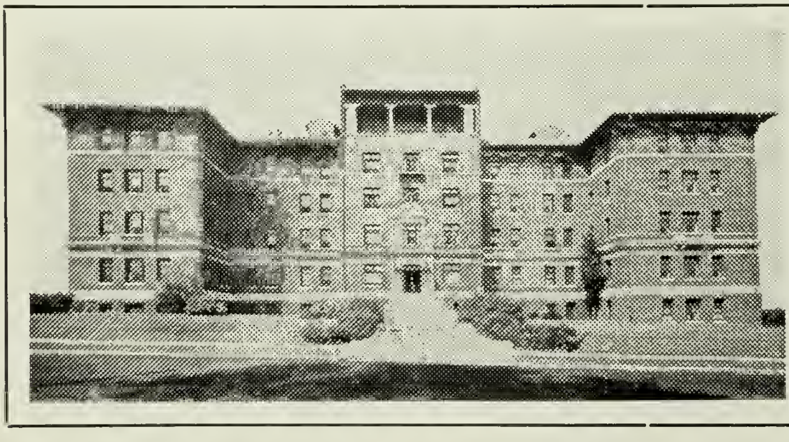

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The fullest information on the subject of radium, in both benign and malignant cases, can be obtained from Dr. Fleming and his associates.

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Well, why does this company make the best? It has maintained this supremacy because it started in business, we believe, about forty years ago with the best leg then known; and the business has been conducted by the same man, associated with two brothers, since it was established, and he and his brothers are educated, scientific men, and always had sufficient pride in the business to keep ahead of all competitors; and besides they have not been without a large degree of sympathy for the unfortunate people who become their customers.

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AT

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THE
JOURNAL-LANCET

Represents the Medical Profession of
Minnesota, North Dakota, South Dakota, and Montana
The Official Journal of the
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A SYMPOSIUM ON TUBERCULOSIS AS TREATED AT GLEN LAKE SANATORIUM*

GLEN LAKE SANATORIUM AND THE TREATMENT EMPLOYED THERE

By E. S. MARIETTE, M.D.
Superintendent and Medical Director
OAK TERRACE, MINNESOTA

Glen Lake Sanatorium is the tuberculosis sanatorium of Hennepin County (Minneapolis).—THE EDITOR.

Glen Lake Sanatorium was opened in January, 1916, with room for fifty patients. Another cottage was opened in 1917, which gave us another fifty beds and permitted us to add another physician to our resident staff. Late in 1920 a dentist was added to the staff.

The x-ray apparatus, which we have found to be invaluable in the field of diagnosis and the estimation of pathological activity, was installed in 1920, and our present Administration building was opened for patients early in 1921. This is a six-story building with no porches, except on the top story, consisting of a deck house and an uncovered porch, which is used for heliotherapy. Porches were omitted elsewhere because of the cost and also because they exclude the direct rays of the sun from the rooms. That may seem a small matter, but direct sunlight is the best germicide we have, and we wanted as much as possible of it in the room, so we tried to combine the room and the porch. The building is so constructed that each room is really only a glazed porch. I mention this because, to many, a sanatorium means porches only.

The rational treatment of tuberculosis presupposes a knowledge of the pathology and physiology of the tubercle in its acute inflammatory stage and in its quiescent and its healed stage.

Nature's response to the primary infection is a slow, delayed, sluggish proliferative reaction resulting in the primary tubercle. The response to subsequent infection is far different; that is, an acute inflammatory reaction accompanied by a large area of collateral inflammation. If repair takes place the inflammation soon subsides, leaving us the acutely inflamed tubercle, which permits a more or less free exchange of bodily fluids between it and the surrounding tissue. As improvement takes place there is a change in the wall, which tends to limit this exchange, and we have the quiescent tubercle. This process continues until the enveloping capsule is so thick and firm that there is no exchange of fluid or lymph, and this is the healed tubercle. So the chief difference between the acute, quiescent, and healed tubercle is the wall or enveloping capsule.

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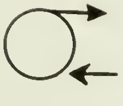
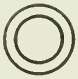
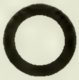
*Presented before the Hennepin County Medical Society October 3, 1921.


Acute inflamed tubercle


Quiescent


Healed

The crux of the treatment, then, depends upon the rapidity of the capsule formation, its thickness or strength, and its degree of permeability.

For the last thirty years the treatment of tuberculosis has been based on four things: fresh air, good food, rest, and exercise, named in the order generally advocated by the medical profession. My aim now will be to show you that in my opinion this arrangement should be changed. The test of each will be its effect upon the inflamed tubercle at the start of the treatment and the quiescent tubercle later on.

FRESH AIR

Its value lies chiefly in its tonic effect on the entire body, which is much the same as the tepid bath in typhoid, and not upon any local effect it may have on the tubercle in the lungs.

With all other diseases accompanied by fever the patient is put to bed and no one expects fresh air and good food, which are so often linked together in the advice given the patient, to do all the work. Flynn of Prescott, Ariz., in the land of the climatic treatment of tuberculosis, says that if one has to choose between climate and care, he had better choose care and let climate go.

GOOD FOOD

There is an optimum diet beyond which it is not wise to go. When a patient has been undernourished for some time, he can eat as much as he wants, as often as he wants it, broadly speaking; but there will come a time when he is fed up, so to speak, when he has made good his deficit, and from then on he becomes as others with regard to the dangers of overfeeding. He should have a well-balanced diet of not over 3,000 calories containing not more than 70-100 gms. of protein.

McCann, of the Bellevue Hospital Staff, reported at the last meeting of the National Tuberculosis Association as follows: "An investigation was made to determine whether 'forced feeding' produces deleterious effects in a similar manner to exercise in cases which had become afebrile by complete rest and a moderate maintenance diet. The first effect of a high-caloric diet is to increase the pulse rate. After ten days to two weeks increased afternoon temperature may be observed, and, in spite of an increase in weight, the signs of activity of the pulmonary lesions may be increased."

Do not push the milk and eggs at this period, because the patient may sicken of them, and later, when his digestion fails and he needs them, he cannot use them.

REST AND EXERCISE

Exercise at this stage (the acute inflammatory stage of the disease) will serve only to aggravate the inflamed tubercle and prevent it from progressing favorably to the quiescent one. This explains the statement of Bushnell: "In the Southwest are the graves of many patients who have been told to go south and rough it, but to keep away from the physician." That leaves rest as the most important factor at the beginning of the treatment; however, there comes a time when exercise is just as important as rest is now.

REST

Theoretically and practically, limitation of the patient's activity, or rest, will most readily permit the acute inflamed tubercle to quiet down and become a quiescent one. We medical men could well take a lesson from the surgeon who puts the tuberculous knee in a cast, but does not remove it and allow movement of the diseased part as soon as the patient's temperature and pulse become normal. The cast is removed only after he is satisfied that the best result for that particular case has been obtained. He would be far less hopeful about the recovery if he knew that the knee, even in the splint, would have to move 1,000 times an hour and 2,400 times a day as the lungs do; and, if he still followed his present reasoning, he would place the patient in the position which would reduce these movements to a minimum.

So every patient coming to Glen Lake is put to bed, as that is the position requiring a minimum amount of lung exercise, for varying periods of time, the minimum being six weeks in any case. A patient showing evidence of toxemia of three weeks or longer is kept in bed at least as long after the symptoms have disappeared as it took them to disappear. That rule is adhered to even if it takes six months or a year for the temperature and pulse to reach normal and remain there. So far, the patients have been very willing to coöperate with us to that extent. If the fever and pulse are below 100° the patient is allowed to go to the toilet; if above 100° for temperature and 110 for the pulse, he is kept in bed and uses either a bedpan or bedside commode. In acute disturbances, hemorrhage, etc., he should be fed.

Astonishing results, both symptomatic and physical, are often obtained from bed rest in the early stage of the treatment, and with report of the patient's progress it is usually easy to obtain his coöperation to the extent that he will remain in bed long past the time mentioned above, even until, in our judgment, the maximum amount of benefit to be derived from bed rest has been obtained in that particular case. That means in some even a complete disappearance of physical signs, and in others merely a symptomatic cure. Of course in the old chronic fibroid case the patient is not kept in bed more than the six weeks. Here it may serve only as a disciplinary measure.

The mental effect of bed rest is very beneficial, especially on the early case. It gives the patient time to orient himself—teaches him that he is a sick man, and he gradually absorbs the fact that he must work hard to regain his health. This is the time when he can be most easily trained in the care of himself and his disease. Also when he is finally put on exercise, he feels that he has made real progress on the road to recovery. Of course, there will be a few exceptions, but, aside from those complicated by metabolic disturbances, these should be very few. The physician's powers of persuasion, tact, and suggestive therapy will help him greatly in the control of the nervous patient during this period.

After the maximum amount of benefit has been obtained from bed rest, and the tubercle appears to be stationary, then some form of stimulation is desirable,—tuberculin, exercise, etc. We prefer exercise, because of its beneficial effect upon the muscular system, and we think that at this time it is just as important as rest was previously.

EXERCISE

The patient is now started to meals on Brown's meal schedule: 1st day, one meal; 2d day, none; 3d day, one meal; 4th day, none; 5th day, two meals; 6th day, one meal; 7th day, two meals; 8th day, two meals; 9th day, three meals; 10th day, two meals; 11th day, three meals; 12th day, three meals. This is based on the fact that the harmful effects of exercise do not manifest themselves until the next day. Patients are usually allowed to go to meals for a month before additional exercise is assigned. When we think the patient is ready for more exercise, we assign him a five to ten minute walk daily, increasing this every two weeks, as conditions warrant, up to half an hour, when light work is given him. This is increased in the same manner until the patient is receiving four hours exercise daily. After a patient has received four hours exercise for four to six months, he is ready for discharge. If, during the above outlined course of exercise, the resting temperature goes to 99° per mouth for three days, we take the exercise away and allow him to go to meals only; if to 99.5°, he is given a tray, but may go to the toilet; if to 100° or above, he is made a strict bed patient, and the same rule with regard to getting up is used again. When he is ready for exercise we start him again at the bottom, and the rapidity of the increase depends upon the cause of the temperature and the condition of the patient.

RECAPITULATION

For the tuberculous we prescribe, not a medicine, but a new mode of living, which centers about—

Rest.
Properly supervised exercise.
Good food.
Fresh air.
We might add education for the patient.

AIDS TO THE REST TREATMENT

Occupational Therapy.—This is a great aid to both the physician and the patient. It serves to quiet the patient mentally and to make him more contented. Both the bed and ambulant patients are markedly benefited by it. It also is under close medical and nursing supervision, and the patient is allowed only so much, and he must stop when his time is up. The idea of occupational therapy can be carried further, and in those cases whose conditions and future warrant it, even to industrial rehabilitation, and the patient is taught a new occupation which is not so difficult as the one he had before he broke down.

Heliotherapy.—Dr. Bendes, who has had six years of training in sun cure at Perrysburg, N. Y., the "Leysin" of America, will discuss this point.

Postural Rest. This form of rest means spending as much of the twenty-four hours on the diseased side as possible. The ribs are thus pressed closer together, movement is restricted, the mediastinum is displaced to the dependent side, and the formation of fibrosis is hastened. Results are obtained in a few weeks which compare very favorably with those obtained more rapidly by artificial pneumothorax. The fever subsides, the cough ceases, the sputum decreases rapidly from one cupful to hardly enough to cover the bottom of the cup. Râles may entirely disappear. Many patients have been able to "side-step" pneumothorax by use of postural rest. In addition to having the patient lie on the diseased side, we use a pillow 12x15 with 3¼ lb. of saw dust in it, and in certain cases boards are put under the spring to prevent sagging.

Removal of Secondary or Focal Infections.—We have not had a patient whose tuberculosis has not been accompanied by a focus of infection in the mouth, accessory nasal sinuses, or tonsils. They are conditions which would be corrected if the patient did not have tuberculosis; and, from our experience, I cannot see why the tuberculous patient should be denied the benefit to be derived from such a correction.

Everything is being done to "build up" the patient; then why leave in a focus of toxemia to pull him down? It does not seem rational to me to treat anyone for one infection and leave another in, especially when it is so easy to clean up a mouth, remove abscessed teeth and diseased tonsils, or drain an infected sinus. One would not deny a patient the benefit of an appendectomy because of tuberculosis; then why hesitate to remove a focus of disease in the mouth and upper respiratory tract? To date we have had thirty-two tonsillectomies under local anesthesia without one case being made worse as a result of it. It is true that in some cases the course of the disease has not been influenced any, but in others the results have been astonishing. Perhaps the reason for this is the long period of bed rest following a tonsillectomy. Where several teeth need extraction, one only is removed each week.

In other words, the patient with tuberculosis and a surgical complication must be treated much more carefully than a non-tuberculous person.

Pneumothorax.—This will be discussed in a paper by Dr. Jennings, who has been on the staff since 1917.

Thoracoplasty—Indications for:

1. Where pneumothorax cannot be used because of adhesions.
2. Where the base is collapsed, but the apex is adherent. Here we should operate on the base before on the apex.
3. Where we have successful pneumothorax, but because of fibrosis the lung cannot re-expand so will have to give pneumothorax indefinitely.
4. In cases in which there is a long course of treatment ahead, three or four years.

Sauerbruck reports 300 cases with 35 per cent cures; 40 per cent improved; a total of 75 per cent benefited.

Archibald uses live muscle to fill the gap, and reports about 50 per cent improvements. His method is used principally in cases falling in No. 2 under indications.

Tuberculin.—This is not used much because the lung may have all three types of tubercles, and the dose of tuberculin which would affect the quiescent tubercle would surely harm the acute inflamed one.

Medicinal Treatment.—The symptomatic treatment of tuberculosis does not differ materially from that of any other disease, and, therefore, nothing has been said about it. Rest, however, has such a beneficial effect upon the disease that the need of cough medicine is materially lessened.

The following is a schedule of the daily routine for our ambulant patients:

1. Ambulant patients are not allowed to get up before 6:30 A. M. and must be up by 7:00 A. M.
2. They must take cold chest baths every morning, and be ready for breakfast by 7:30 A. M.
3. After breakfast the beds are to be made and personal things put in order by the patients before 9:00 A. M. (This includes shaving.) After rest hours the beds are to be straightened up and the wards left in an orderly condition.
4. From 9:00 to 11:15 A. M. patients rest or exercise as prescribed by the physician. (Rest means lying in bed or on a reclining chair.) "In your room, ward or porch" does not mean playing cards (except single solitaire), chess, or checkers, but patients may read or knit in moderate amounts, upon permission.
5. Lunch 10:15 A. M.
6. From 11:15 to 11:45 A. M. is rest hour. No talking, reading, or knitting, etc., allowed during any rest hour, which must be spent upon the bed.

7. Dinner at 12:30 P. M.

8. Rest hour for all patients from 1:00 to 3:00 P. M.; sleep if possible. (Heliotherapy starts 2 hours after meals.)

9. Lunch 3:15 P. M.

10. Rest or exercise from 3:15 to 5:00 P. M., as prescribed by physician. At 5:00 P. M. all patients prepare for supper.

11. Supper 5:30 P. M.

12. Rest hour (unless otherwise ordered by physician) 6:00 to 7:00 P. M.

13. 7:00 to 8:30 P. M. is recreation hour for all ambulant patients.

14. Evening lunch and preparation for bed, 8:30 to 9:00 P. M.

15. Lights out at 9:00 P. M.

16. NOTE 1.—An ambulant patient is one who goes to the main dining-room for three meals a day. All ambulant patients, unless otherwise ordered, are to make their own beds.

All patients who do not go to the dining-room for three meals a day are classed as bed patients, and are to leave their beds only to go to the toilet and wash-room, and otherwise only upon special permission from the physician, and are not allowed to use reclining chairs.

All ambulant patients must be in bed from 9:00 to 11:45 A. M.; from 1:00 to 5:00, 6:00 to 7:00 P. M.; and from 9:00 P. M. to 6:30 A. M, unless otherwise ordered. All ambulant patients are permitted to gather in the common reception-room in the evening from 7:00 to 8:30 P. M. Ambulant patients will be permitted to visit bed patients of their own sex after their nose and throat culture reports have come back and the isolation notice removed from the door.

NOTE 2.—Glen Lake Sanatorium is for sick people only. Well people are not admitted as patients. Our only excuse for existence is to restore you to health and to the social status of a wage-earner, and to do this in the shortest possible time; therefore, with that end in view we have made the above daily routine.

Everything worth owning costs something, to regain your health will cost you something; the price will be the strict adherence to the daily routine and rules of the Sanatorium. Is your own health worth it? If not, this is not the place for you.

HELIOTHERAPY

By J. Harry Bendes, M.D.
Assistant Medical Director, Glen Lake Sanatorium
OAK TERRACE, MINNESOTA

Rollier, while an assistant of Theodore Kocher, observed that the results obtained by operating upon tuberculous joints were often far from satisfactory, that many of these patients needed repeated operations, resulting in spite of his rigid technic, in secondary infections with unsatisfactory recoveries.

Being convinced that surgical tuberculosis was not, as was generally advocated by the surgeons, a purely local disease, but that it was instead a local manifestation of a general infection, he determined to treat it generally. After careful investigations he decided that the sun cure offered the best form of treatment.

Rollier thought that sun cure placed the organism in an ideal condition for defense. He found that it stimulated the nutrition of all the tissues, activated the interchanges of bodily fluids, and restored the skin to its natural condition. Eliminations and excretions were increased, and the body was better able to absorb energy from the sun and air.

This thought being uppermost in his mind, he opened his sanatorium at Lysin, Switzerland, in 1903. It was not until after publishing his report, in 1913, of 1,129 cases treated during a period of ten years with about 1,000 cures that the medical world began to give the treatment the recognition it deserved.

From that time on heliotherapy began to gain a foothold, and to-day it is fast becoming a recognized treatment for surgical tuberculosis.

Prior to 1913 little was done in this country with heliotherapy. At that time, Dr. C. L. Hyde, then Superintendent of the J. M. Adam Memorial Hospital at Perrysburg, N. Y., decided that if the sun's rays were to be given a fair trial some definite regular method should be used, and so the treatment advocated by Rollier was introduced into this country.

There were earlier workers in sun therapy than Rollier, but he was the first man who was well enough trained surgically to put heliotherapy on a firm, scientific basis and to establish a working technic.

Heliotherapy is indicated, not only in surgical tuberculosis, but also in cases of septicemia, puerperal sepsis, and secondary anemias. It is also indicated in selected cases of pulmonary tuberculosis as an aid in building up general bodily resistance and should be used in conjunction with the hygienic dietetic treatment.

A large proportion of our surgical cases have a pulmonary complication, many of them having positive sputum; and the pulmonary lesion has healed up along with the surgical one.

Certain precautions must be observed in the carrying out of the treatment, for heliotherapy when improperly applied may be dangerous and very injurious. It means a great deal more than turning a patient out into the sun indiscriminately. Before starting a patient with the treatment he is at first put into isolation, to determine whether he is free from every contagious disease. During this time the blood, sputum, and urinary findings are closely observed, and his temperature, pulse, and respiration are carefully noted. This takes about one week, and in the meanwhile the patient has had an opportunity to become acclimated. By this time he is accustomed to the action of the light and air, having spent practically the entire time in the open.

Febrile cases must be watched very closely, and in these cases the time of exposure must be gauged according to the way the patient reacts to the treatment. The treatment is carried out in bed, on a couch, on a bench constructed for the purpose, or even on the floor.

No sun treatment is given later than one-half hour before a meal, and not sooner than an hour after a meal. During the hot summer months it is well not to give the sun treatment during the middle of the day, as it is very depressing and devitalizing and causes nausea, headache, and increase of temperature.

If a wind is blowing every precaution must be taken to guard against a breeze striking the patient. A movable screen about five feet high can be placed in such a position as to give protection. This is absolutely necessary in the fall, winter, and early spring. Although the patients are able to endure a great deal of cold, the slightest breeze will cool the body and will produce a chill, and it is liable to be the exciting factor in producing pneumonia.

The head is protected from the direct rays of the sun by means of a linen cap, sun-bonnet, or awning at the head of the bed.

The eyes are protected by means of colored glasses. This is to ward off the intense sunlight, which will produce symptoms of eye-strain and also cause muscæ volitantes after the patient is taken out of the sun.

The muscæ volitantes at first are very slight and transitory, but later become more or less uncomfortable and are accompanied by headache, dizziness, and derangements of digestion. This can easily be avoided by colored glasses.

The body is divided into zones: as feet, legs, thighs, abdomen, chest, and neck. Our schedule is as follows:

First Day: The patients are clothed in either their pajamas or nightgowns. The head and eyes are protected from the sun by means of a sunshade or glasses. The feet are exposed first without regard to the site of the lesion. The lesions are kept covered with a gauze or wire screen until the whole body has been gradually exposed. The feet are exposed as far as the ankles and insolated for five minutes. This is done anteriorly and posteriorly. There are four insolations given at not less than hour intervals.

Second Day: The feet are insolated for five minutes. At the end of five minutes the legs are insolated for five minutes as far as the knees, thereby giving the feet ten minutes of insolation and the legs five minutes. This is done anteriorly and posteriorly four times, at hour intervals.

Third Day: The feet are insolated for five minutes. At the end of five minutes the legs are insolated as far as the knees. At the end of ten minutes the thighs are insolated as far as the hips, thereby giving the feet fifteen minutes, the legs ten minutes, and the thighs five minutes. This is done anteriorly and posteriorly once in the morning and once in the afternoon.

Fourth Day: The exposure is extended another five minutes up to the next zone, the abdomen being insolated up to the chest. This gives the feet twenty minutes, hips fifteen minutes, thighs ten minutes, abdomen five minutes. The posterior part of the body is also insolated in the same manner.

Fifth Day: The next zone, or the chest, is insolated the same way, increasing five minutes each day. The insolations are increased five minutes each day until the patient is able to take three hours of sun daily.

Occasionally, on account of severe pain or flexions of a limb, or other conditions, it is impossible to roll the patient over and give sun on the back. It is then well to give solar radiations on the anterior part of the body only, and as soon as the condition permits give solar radiations on the posterior part. This can be done in about ten days or two weeks.

Sinuses or ulcers are not exposed until after the whole body has been insolated, and then they are given additional radiation by means of the Thezac Porsmeur lens, a description of which will be given later. After the entire body has been insolated, a loin cloth is the only garment the patient wears.

Precaution must be exercised while the patient is becoming accustomed to the sun and during the formation of the hyperemia, to prevent burning or any other reaction, because it is at this stage that the greatest damage can be done. If, for any reason, such as a burn, high temperature, acceleration of pulse, nausea, emesis, headache, or any other constitutional disturbance occurs, it is necessary to discontinue the sun-bath for a few days, and the insolations must be started again a few steps back from where the patient left off.

Blondes and red-haired individuals have superficial blood vessels, and the pigment deposit in the skin is scant. A deposit of pigment in the skin can be obtained by giving them a diet of carrots and spinach, which produces a carotinemia. This skin pigment enables them to develop a deeper tan and pigmentation.

The degree of pigmentation is an index to the progress the patient is making. The deeper the tan, the more favorable the case and the sooner the recovery.

Patients upon entering the hospital who are thin, emaciated, cadaverous looking, fever ridden, anemic, and almost dead with pain so that the slightest jar causes excruciating pain and they are afraid to have one lean against the bed, begin to improve in about ten days. The pain is relieved, the chills and fever subside, and from an unhappy, sickly individual, we soon have a smiling, contented patient.

For deep-seated lesions, indolent ulcers, and sinuses, localized pain, and sluggish wounds, we are using the Thezac Porsmeur lens. It is a biconvex lens with a diameter of 12 inches and a focal point of 72 inches.

It was first introduced into this country by Mrs. Edward C. Post of New Port, and was used in her Sanatorium at Porsmeur Morlaix, Brittany, in the treatment of sluggish wounds among the soldiers.

The lens is focused over the site of the lesion so as to obtain a circle of light 7 inches in diameter. Less than 7 inches, the heat from the circle is too great to be comfortably borne by the patient, and greater than 8 inches, it is not efficacious. If the sun is very hot, the circle is made larger; and if the sun is poor, a smaller circle of light is used.

The treatment is started at five minutes and increased five minutes each day until thirty minutes are being given, and then a treatment of thirty minutes is given morning and afternoon. Sluggish wounds which would not heal begin to take on a healthy aspect, and granulations form. Ulcers and sinuses heal over, fistulas cease to drain, and heal, and pain is relieved almost miraculously.

Great care must be exercised in handling the lens. At its focal point it burns anything combustible almost instantaneously.

Special attention must be exercised in keeping colored materials away from the zone of light while a patient is taking the lens treatment.

White is the least combustible of all colors. It allows all of the sun's rays to pass through it and offers the least resistance to the rays, thereby producing little heat. Under the direct rays of the sun at the lens' focal point, white cloth will burn in ten seconds, whereas colored cloth will burn instantaneously.

Indoors, where the sun enters through a pane of glass or through screening, colored material will burn just as quickly as outdoors; while white cloth will not burn at all, proving thereby that sun-baths are not as efficacious when taken through glass or wire screening.

On cloudy days when we are unable to give sun cure, we give a general air-bath in place of the sun-bath. This acts as a general tonic and a stimulant. We also use the Mercury Vapor Lamp.

The Mercury Quartz Vapor Lamp has been used as a substitute for the sun on cloudy days and in winter for so long a time that it can no longer be deemed an experiment; but, on the contrary, it is an approved method in the treatment.

In the treatment, by means of the lamp, we have deviated a little from the regular Rollier technic. Instead of zoning the body and increasing by five minute periods, we give general body radiations for one minute, increasing one minute each day until fifteen minutes are given: then we increase by five minutes, instead of one minute, until thirty minutes are taken, the lamp being placed thirty inches from the body. After a patient has become well tanned, we can proceed more boldly and shorten the distance of the lamp from the body progressively to fifteen inches. When it is necessary to substitute the lamp for the sun during the course of the treatment, one minute of lamp is given for every five minutes of sun. The distance of the lamp depends upon the tanning of the body.

The rays generated by the lamp are very irritating to the eyes, causing a conjunctivitis unless the eyes are protected by colored glasses. This is not permanent, however, and will clear up in a few days.

Pain is an almost constant symptom of surgical tuberculosis. It is usually dull, boring, and continuous in character; and in children and adolescence it is often referred. It is rarely necessary to resort to opiates for its relief, as sun cure accomplishes this in about ten days.

In abscess cases when it is necessary to remove the pus it should be done by means of aspirations alone, never operating directly into the abscess, but a short distance from it, passing the needle first through the healthy tissue then into the abscess cavity. This prevents the possibility of the abscess rupturing and causing a mixed infection, by sealing the cavity when withdrawing the needle.

But this much can be said: Pain has been relieved in those who suffered without resorting to opiates. In our joint cases the various degrees of flexion deformity have all been corrected. The spine patients who could not sit up or turn over in bed without undergoing agony and distress are now smiling and happy. The enteritis patients, with constant pain in the abdomen and from five to seven bowel movements a day complicating it, are now free from pain and have only one or two well-formed stools in twenty-four hours. In the laryngeal patients, the ulcers on their larynx have healed over, and they can enjoy their meals without experiencing pain, which was sometimes sharp enough to drive them mad.

No spectacular results can be accomplished with heliotherapy. In the early cases, the cure is oftentimes rapid; frequently in peritonitis it is a matter of a few months. Spine cases take from two to three years; knees and hips, a corresponding length of time. The non-operative cases respond more quickly than the operative ones; the closed cases more quickly than the open ones, on account of absence of secondary infections. Generally speaking, heliotherapy is not a quick cure; on the contrary, it is slow but sure, and the results are satisfactory and permanent. Heliotherapy can be given anywhere,—in the city, as well as in the country; on the plains, as well as in the mountains; in winter, as well as in summer.

At this time it is a little too early to make any report on cases at the Glen Lake Sanatorium.

X-RAY IN TUBERCULOSIS

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We shall not attempt to go into details regarding the use of the *x*-ray in the diagnosis and treatment of tuberculosis, but will limit ourselves to the essentials, limitations, and value of the method.

The *x*-ray is being used more and more in the diagnosis of pulmonary tuberculosis. We have heard in the past and shall probably continue to hear for some time to come many absurd arguments regarding the relative value of clinical methods and the *x*-ray in determining the presence of pulmonary tuberculosis. Both are but aids in arriving at a complete and accurate diagnosis, the ultimate object being the welfare of the patient; but in the *x*-ray we have a remarkably accurate means of detecting the presence or absence, the extent and the character, of pulmonary pathology.

There are two methods of chest examination,—the fluoroscope and stereoscopic plates. While fluoroscopy is essential in visualizing the pulsation or non-pulsation of mediastinal masses, the movements of the diaphragm, and the passage of the barium bolus, it is of no value in determining small infiltrations of the lung or the character of gross lesions. Stereoscopic plates are of prime importance in determining pulmonary pathology. Even here errors in technic may cause error in diagnosis. Breathing during exposure may blot out small areas of pulmonary infiltration or may simulate infiltration where none is present. Overexposure of the plate will also cause the disappearance of slight densities. A good rule to follow is that the quality of the plate should be such that the ribs are white and the lower ribs do not show distinctly below the level of the diaphragm; but the hardest errors in technic to overcome are the errors in interpretation.

The adult form of pulmonary tuberculosis can be grouped from the Röntgen standpoint into three types: (1) pulmonary miliary tuberculosis, which is hematogenous in origin and accompanies a generalized miliary tuberculosis. This condition, which is characterized by the distribution throughout both lungs of small millet-seed-like areas of infiltration, offers, if the lesions are large enough to visualize, no difficulties in diagnosis. All pulmonary tuberculosis other than this form can be classified as (2) peribronchial and (3) parenchymal, forms which can be definitely differentiated by the *x*-ray.

The character of the picture in peribronchial tuberculosis depends upon the involvement of the lymphoid tissue along and at the bifurcations of the bronchial tree. In the average normal adult the linear markings are not visualized beyond a line drawn parallel to the chest wall and extending from the junction of the inner and middle thirds of the clavicle to the base. In peribronchial tuberculosis the linear markings extending beyond this line or above the clavicle, are increased in number, thickened, fuzzy in outline, and nodulated.

Parenchymal tuberculosis depends upon the involvement of the air vesicles themselves, and the basis of this type of infection is the conglomerate tubercle. This type is usually upper or middle lobe in origin, and the pathological process remains more marked or more advanced in the upper parts of the lung. The character of the changes as seen on the *x*-ray plate depends upon the pathological process. The density of the lesions varies from the slight haziness seen in the initial exudation successively through cellular infiltration, fibrosis, to calcification. Basal tuberculosis is quite rare, and even though the evidence is very suggestive it is best to await the appearance of tubercle bacilli in the sputum before making a positive diagnosis.

Parenchymal tuberculosis is always of clinical importance unless the conglomerate tubercles are few in number and definitely calcified, and the linear markings extending toward the hilus from them show a clean-cut shadow. Peribronchial tuberculosis to be considered of clinical importance should be upper or middle-lobe distribution, gross in amount, either unilateral or more marked on one side as compared with the other, and should exhibit a hazy outline and definite nodular appearance. Unless involvement of the peribronchial tissue conforms to these qualifications it represents either a non-tuberculous infection or is merely the residue of an obsolete tuberculosis.

The diagnosis of the complications of pulmonary tuberculosis, that is, cavity, pneumothorax, pleurisy with effusion, interlobar pleurisy, hydropneumothorax, abscess, and bronchiectasis, offers no difficulty. I would offer only this word of warning, that one should be careful not to consider as cavities localized annular pneumothoraces, which quite often occur over the upper lobes. The differential diagnosis of pulmonary tuberculosis offers several limitations, and the accuracy of diagnosis will depend entirely on the judgment and experience of the röntgenologist. The condition which most closely resembles it is an atypical bronchopneumonia. With a history of recent influenza or pneumonia it is best to wait a few weeks or months for a second set of plates before pronouncing a slight infiltration or consolidation tuberculous, unless there is definite evidence of fibrosis or calcification present.

The determination of the activity or non-activity of a tuberculous lesion is outside the province of röntgenology. The röntgenologist should state whether there is pulmonary tuberculosis present, and, if so, whether it is of a type which is capable of producing symptoms. Considerable can be told concerning the age of the lesion although recent infiltration may be concealed by old dense fibrosis and calcification. The character of the lesions as shown on the *x*-ray plate may aid greatly in determining the prognosis. The great value of the method, however, lies in the negative diagnosis of pulmonary tuberculosis. In the presence of toxic symptoms and a negative Röntgen examination, further search should be made for the real cause of the patient's symptoms.

Puerile tuberculosis probably forms a definite entity. But puerile tuberculosis, or what is also called tuberculosis in a non-sensitized individual, should not be confused with tuberculosis in childhood. The adult type of tuberculosis occurs in childhood probably more frequently than is usually recognized. Also, the puerile type of tuberculosis may occur in the adult. I shall not go into this subject in any more detail because we expect to present at one of the early spring meetings a preliminary report of the *x*-ray examination of the chest in suspected tuberculous children.

As shown in the work of Brown, Heise, and Sampson, the *x*-ray is of great value in the early diagnosis of ulcerative tuberculous enteritis. The patient is examined by means of the barium meal and the barium enema. Six hours after the ingestion of the barium meal the head of the barium column is usually still in the terminal ileum. At twelve hours the head of the column is beyond the cecum or ascending colon with very little if any in the cecum. At twenty-four hours the meal is entirely beyond the cecum or ascending colon. This is due to the spasm and rapid passage in the area of ulceration. On giving a barium enema the solution will fill up the cecum and the ascending colon, which will then go into spasm and force the solution back into the transverse colon. Later this will relax only to go into spasm again. In the hypertrophic type of tuberculous enteritis the diagnosis is considerably more difficult unless ulceration plays a prominent part.

The *x*-ray has long been of prime importance in the diagnosis of tuberculous osteo-arthritis and spondylitis. There is an early indeterminate stage in tuberculosis when there is only slight effusion and periarticular swelling of the joint and when destruction has not begun. Atrophy or loss of calcium salts in the contiguous bones is, however, an early occurrence. Then we have the typical very hazy and indistinct röntgenogram of a tuberculous lesion. It is very important in suspected tuberculosis to ray both the normal joint and the abnormal joint on the opposite side, in order to detect slight degrees of atrophy. In order to avoid error it is essential to radiograph the two joints on the same plate or at least under the same conditions of technic. In the further course of the disease the articular cartilage is gradually destroyed, the destruction being indirectly detected by the narrowing of the joint space. Following the destruction of the cartilage the disease penetrates the bone and the bone just beneath the cartilage becomes irregular and worm eaten in appearance. In the stage of repair there is seldom new bone production, the destroyed areas being replaced by fibrous tissue. However, if there has been a secondary infection of the joint there may be marked new production which may completely mask the changes which are characteristic of tuberculosis.

Tuberculous osteomyelitis is extremely hard to differentiate from other infections. The lesion is usually near the epiphysis, and the joint is frequently involved. It may be accompanied by a marked periostitis, but there is generally no sequestrum or new bone formation in the shaft. There may also occur isolated punched out or cyst-like areas in the bones due to tuberculosis.

The *x*-ray occupies by no means as prominent a place in the treatment as it does in the diagnosis of tuberculosis. The *x*-ray treatment of tuberculous adenitis is now established as the method of choice, and you are all familiar with the excellent and oftentimes marvelous results obtained in this condition. The critical examination of the results obtained in *x*-ray treatment of tuberculous skin lesions belongs more in the field of dermatology. Our experience is very limited in this regard.

Röntgen therapy has been used and advocated by various writers in genital and peritoneal tuberculosis, tuberculous enteritis, and even pulmonary tuberculosis. We are far from understanding the relation that may exist between the therapeutic effect of *x*-rays and the active rays of heliotherapy. In my opinion, until *x*-ray therapy of these conditions is established on a rational rather than an empirical basis, its use should be attended with great conservatism.

RESULTS OF TONSILLECTOMY IN THE TUBERCULOUS

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During the past three years while serving as consultant laryngologists to the Glen Lake Sanatorium for the tuberculous, we have had occasion to perform tonsillectomies in thirty-two patients suffering with pulmonary tuberculosis in various stages of activity and severity. The operations were done with the idea of improving, if possible, the general condition of the patients and thereby aiding them to combat the tuberculous infection.

All of the patients operated on were selected cases. The indications for operation in each case were carefully considered after a study of the patient's physical condition, the history, the progress of the disease, and a careful examination of the nose and throat. All of the patients were atoxic at the time of operation. Practically all of the patients gave a history of repeated tonsillitis or peritonsillar abscess and presented upon examination evidence of gross pathology, such as hypertrophy, adhesions, scarring, and excessive cryptal débris or pus on pressure.

The tonsillectomies and adenoidectomies (when adenoids were found) were all done under local anesthesia, using from four to six drams of 0.5 of 1 per cent novocain by infiltration. Every effort was made to protect the patient from exhaustion, shock, and excessive hemorrhage. Fortunately, there were no cases of secondary hemorrhage or infection. Following the operation, the patients were kept in bed from two or three weeks to two or three months, depending upon the individual reaction.

In this series of thirty-two cases there were two in which the diagnosis of pulmonary infection could not be confirmed by physical signs or röntgenograms. The remaining thirty had pulmonary pathology varying from incipient healed lesions to "far advanced" or Turban iii involvement of both lungs. Complicating the pulmonary infection five had laryngeal tuberculosis, one tuberculosis of sacro-iliac joint, three tuberculous otitis media, and one a tuberculous sinus of the face. In addition to the tuberculous infection, two patients had chronic arthritis, one ozena, and one perigastric adhesions. Two of the patients had positive Wassermanns which alternated positive and negative without antiluetic treatment.

Nineteen of twenty-eight patients, that is, approximately 68 per cent, of whom we have records, had bacilli in the sputum at the time of operation. Five of the patients had pneumothorax. Eight had slightly enlarged cervical nodes, but no more marked than one often finds in patients that are not clinically tuberculous. Following the operations, twenty-three, or 72 per cent, showed unquestionable improvement in symptoms and physical signs. Before proceeding further, I want here to make it clearly understood that many of these patients were steadily improving under the routine Sanatorium treatment and that the tonsillectomy was only one of the factors which contributed to their improvement. The chronic arthritis mentioned in the two cases above promptly cleared up after removal of the tonsils.

While in the remaining nine cases, or 28 per cent, there had been no demonstrable improvement in the patients' condition, I believe Dr. Mariette will agree with me, not one of them has been made worse as a result of the operation. It will also be noted that the patients in whom there was little or no improvement, were ones with marked pulmonary involvement or complication, such as sacro-iliac or laryngeal infections. One patient died with generalized miliary tuberculosis six months after the operation.

Microscopic examination of the tonsils removed showed a very interesting condition. Twenty-two, or 69 per cent, of the patients showed tuberculosis of the tonsils. The extent of involvement of the tonsil with tuberculosis varied from only an occasional small tubercle to massive destruction of the lymphoid tissue and its replacement by aggregate tubercles and fibrosis. The most frequent location for the tubercles was near the surface or cryptal epithelium and at the periphery of the lobules of lymphoid tissue. In one instance tubercles were found extending into the capsule and muscle. The tubercles were variable in size, having either few or many giant cells, but with little or no central areas of necrosis. Grossly, the tonsils showed no ulceration or induration or other evidence on which a diagnosis of tuberculosis could be made. This condition is called by many writers "latent tuberculosis," to distinguish it from the "lupoid" type, which is characterized by ulceration and fibrosis.

The microscopic diagnosis in the ten patients who did not show tuberculosis may be open to criticism because more sections were not examined. No attempt was made at serial sections of the whole tonsil because of the labor involved. In most cases, however, sections were made through the entire tonsil, and sections from both tonsils were examined.

The 69 per cent which are positive in this small series coincided exactly with that found by Wood of Philadelphia. Wood published statistics of 1,871 tonsillectomies and found 5.2 per cent tuberculous. In this same series 69 per cent of those with pulmonary tuberculosis were positive. Strassmann reports tuberculosis of the tonsil in thirteen of fifteen patients who died of pulmonary tuberculosis. Kruckmann reports twenty cases of pulmonary tuberculosis with the tonsils positive in twelve. Walsham found tuberculous tonsils in twenty of thirty-four autopsies on pulmonary tuberculosis. Cornil and Ranvier and Glas state that the tonsils are tuberculous in from 60 to 80 per cent of cases of pulmonary tuberculosis. Friedmann in a study of tuberculous children found in forty autopsies the tonsils involved in seventeen, less than 50 per cent, and a much smaller percentage than that reported by other writers.

Cornil, in 1875, was the first to describe tuberculosis of the tonsil. Some time later Orth (1879), Abraham, Kendall Franks (1885), and Stewart (1895) reported isolated cases. Piffl was one of the earliest to make an extensive study. He examined seven hundred and sixty-four cases removed for all causes and found 4 per cent tuberculous. The most exhaustive study is that of Weller, who found in an examination of 8,697 cases 2.35 per cent tuberculous. In the literature one can find percentage reports varying from 0 to as high as 15 per cent. In cases from our own practice in which the tonsils are removed for all causes, I do not believe that we have more than 2 per cent. Suppose then we grant that in routine practice from 2 to 5 per cent of tonsils show tuberculosis, and in the pulmonary tuberculous it is from 60 to 80 per cent, how are we to account for this striking difference? The question at once brings up the discussion as to whether we are, in tonsillar tuberculosis, dealing with a primary or a secondary infection. This question has considerable evidence on both sides. One of the most recent articles on this subject has just been published in the March (1921) number of the *American Review of Tuberculosis*. Zwaluwenburg and Grabfield, of the Department of Röntgenology of the University of Michigan, in conjunction with Canfield, Warthin, and Baker, have made studies to show that one of the earliest signs of an apical tuberculous infection is an apical pleuritis, which is demonstrable with the *x*-ray as a shadow which they call the "pleural cap." Ninety-three per cent, or fifteen of sixteen cases, with tuberculosis of the tonsil showed the "pleural cap," as contrasted to only 11 per cent of cases in which the tonsils were negative. In tuberculous cervical adenitis the "pleural cap" is present in 59 per cent. In 12 per cent the *x*-ray showed frank tuberculosis, which may have obscured a "pleural cap," if present. A total then of 71 per cent of the cases of cervical adenitis show either frank tuberculosis or a "pleural cap." These writers believe that the descending lymphoid path of tuberculous infection, beginning in the tonsil or lymphoid tissue of the pharynx and extending down the cervical nodes to the apical pleuræ, is a possible one, and, when contrasted to the devious and indirect hematogenous or lymphogenous route, is the more probable.

In another recent article Rhodes (1920), reporting on tuberculosis in soldiers during the recent mobilization, says that in all of his cases of pulmonary infection there was a history of repeated tonsillitis. He reports distinct improvement in the early cases as a result of removing the tonsils. Microscopic examinations were not made, and he has no scientific proof for his belief that the infections were primary in the tonsils.

In the early literature it is easy to find many writers reporting both clinical and experimental evidence to show that the tonsils, adenoids, and pharyngeal lymphoid tissue may serve as the portal of entry for tuberculous infection. Grober (1905) injected the pharyngeal wall of dogs and guinea-pigs with India ink and killed them at varying intervals after the injections. He found that the ink particles were carried down the cervical lymphatics to the apical pleura and eventually to the lung parenchyma. Beitzke, Most, Trautmann, and others criticized Grober's work on anatomical grounds, but practically all investigators agree that the cervical-node infections are secondary to pharyngeal, tonsillar, or gingival infections. From both the experimental and clinical evidence, I believe most of us will agree that tuberculous cervical adenitis is secondary to infection in the tonsils or adenoids. Woodhead believes this to be true in 90 per cent of the cases he has observed and advocates removal of the tonsils, as well as the caseating nodes.

Carmicheal reports an interesting series of fifty cases with cervical adenitis. Thirty-seven patients had only slight enlargement of the carotid group of glands around the posterior belly of the digastric. In this group only two showed tuberculosis of the tonsil. In the remaining thirteen cases in which the glandular enlargement was marked, five showed tuberculosis in the tonsil. In the total seven cases with tonsillar involvement only two showed pulmonary infection. He considers the five cases without lung involvement as primary infections in the tonsil. Mathews, Hurd, Williams, and many others have shown tuberculosis of the tonsil in from 70 to 85 per cent of cases of tuberculous cervical adenitis.

Those who are opposed to the assumption that tuberculosis is primary in the tonsils believe that these organs, like the kidneys, spleen, and serous membranes, are secondarily infected through the blood-stream from a remote primary focus.—or, which is the more probable, by means of infected sputum from a focus primary in the lungs or bronchial nodes. I believe that this theory is the prevailing one among pathologists at the present time.

However, Weller, who perhaps has made the most exhaustive study of tonsillar tuberculosis, divides it into three types: focal cryptal infections, ulcerative lupoid lesions, and diffuse miliary tuberculosis. He finds the cryptal type the most common and believes, except for cases of auto-infection from open respiratory tract lesions, such as we are dealing with in this paper, that they are primary infections. The ulcerative lupus-like lesions are formed by a coalesing of cryptal infections and can be diagnosed grossly. The diffuse miliary tuberculosis involves primarily the lymph follicles and is hematogenous in origin.

The majority of the cases in my series show microscopically lesions of the cryptal type and should be considered, I believe, auto-infections from sputum. All but one of the patients with positive tonsillar infections had also positive sputa, which would lend weight to this assumption.

SUMMARY

Local tonsillectomy was performed on thirty-two patients suffering with pulmonary tuberculosis. Of this group approximately 72 per cent showed definite improvement in their general physical condition following the operations. In the remaining 28 per cent, the operation apparently had no demonstrable effect on the course of the disease.

Upon clinical examination none of the tonsils showed evidence of tuberculosis, but upon microscopic examination twenty-two, or 69 per cent, showed tuberculosis. The extent of involvement varied from only an occasional small tubercle to massive involvement of the whole tonsil.

The path of the tonsillar infection has not been definitely proven. The majority of the lesions in the tonsils were around the crypts and under the surface epithelium, which would indicate an auto-infection from the sputum. Two of the specimens also showed tubercles in the centers of the lymphoid follicles, which would indicate a hematogenous infection. With but one exception all of the patients with tuberculosis of the tonsils had bacilli in the sputum at the time of operation.

From a study of the above cases I believe pulmonary tuberculosis is not to be considered a contra-indication for local tonsillectomy when this operation is indicated.

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ARTIFICIAL PNEUMOTHORAX IN TUBERCULOSIS

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Artificial pneumothorax is a recognized form of treatment for pulmonary tuberculosis. It is not a new "wrinkle" which in a few years will be obsolete, but one which has stood the test of more than twenty years and has an international association devoted wholly to its study.

The efficacy of this form of treatment depends mainly upon the degree of functional rest that can be established and maintained in the diseased lung and upon the lessening of toxemia.

Indications.—Pneumothorax, while on a theoretically sound basis, entails an element of risk, and for this reason we feel that the patients should have the benefit of a trial at the ordinary forms of rest, including postural rest, before pneumothorax is attempted.

Only progressive cases or those cases which, while not progressive, still fail to improve under rest treatment, should be given pneumothorax, and of this group the wholly unilateral cases offer the best results. The cases offering the next best results are those in which the changes in the good lung are not made out by physical examination, but which the *x*-rays show to be well calcified. Cases which have a third or less of the so-called good lung involved, if getting progressively worse, should not be denied a trial at pneumothorax. Many writers claim that pneumothorax given under the latter conditions often improves the better lung. We have had one case in which this is true and some in which the disease of the better lung was not made worse. This, however, has been the exception rather than the rule, because in most of our cases the disease of the better lung was aggravated because of its increased function.

As means of controlling pulmonary hemorrhage, pneumothorax is a method par excellence. Unfortunately, however, in the cases most subject to hemorrhage, the advanced cases, the physician is in doubt as to which side is bleeding.

Contra-indications. — Contra-indications to pneumothorax are incipient favorable tuberculosis, extensive disease of both lungs, arteriosclerosis, chronic and acute nephritis, and cardiac disease unless there is good compensation.

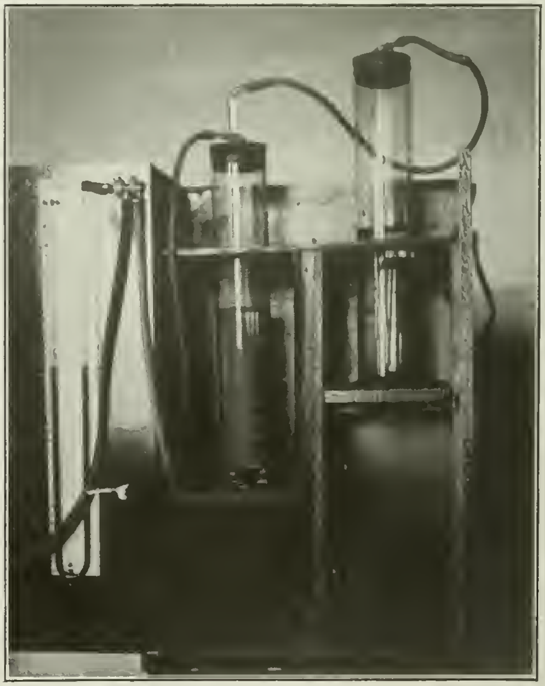
Adhesions, strictly speaking, are not necessarily a contra-indication, but they may prevent entirely the introduction of air or only permit a partial collapse. Where a partial collapse only is obtained, the uncollapsed part is usually the most diseased part; in fact, just the part one wishes to collapse. Tuberculosis of the larynx, ear, genitalia, etc., is not to be considered a contra-indication. Tuberculosis in any part of the body besides the lungs is not necessarily a contra-indication. In fact, it is often improved by the reduction of toxemia after lung compression.

Technic.—The patient lies on his good side with a small pillow under his ribs, and the upper arm is placed above his head, thus causing a widening of the intercostal spaces on the side to receive the pneumothorax. The usual site of puncture is the mid-axillary line and this is prepared as for any thoracentesis. Novocain, 1 per cent, is used as an anesthetic for the skin and parietal pleura. The skin is nicked with a cataract knife sufficiently to allow the passage of the needle into the tissue without any gripping from the skin, thereby affording a more delicate perception of the resistance offered by the pleura.

We have used various needles designed for the operation, but for the most part rely on the ordinary 18-gauge Leur needle, which, in the initial operation, has a point with an angle of not less than 45 degrees.

The pleura should never be pierced without the needle being connected with the manometer of the apparatus, the oscillations of which afford an idea of whether the point of the needle is in the pleural cavity, parenchyma of the lung, blood vessel, or adhesions. Only when the negative manometer oscillations exceed 3 cm. (water) may one venture to let in air.

Apparatus.—We use a modified Floyd-Robinson apparatus of our own make, a picture of which is here shown. It consists of two large 1,000 c.c. cylinders, instead of large bottles. As the manometer is a U tube, any movement on one side is accompanied by a movement on the other side; therefore, the reading should be just twice the amount indicated on one arm. So 1 cm. actual measurement is called 2 cm., just as the mercury manometer on a blood-pressure apparatus. The Floyd-Robinson is not graduated in this manner. It is important that the manometer be connected so that oscillations are



obtained during the whole time that the needle is in the pleural space.

When the air is allowed to enter the pleural space the fluid from the higher cylinder flows by syphonage to the lower one, forcing the air from the lower cylinder into the pleural space. The difference in the level of the fluid should not be very great. This is particularly true in initial injections.

Air has largely supplanted nitrogen because it is devoid of the impurities so frequently encountered in manufactured nitrogen and because it has been found to be practically as useful.

It has been our practice to bring about a gradual collapse of the affected lung, believing that by so doing we are less liable to have aspiration of the infectious material into the good lung and that heart and mediastinal complications will be avoided. This also reduces the danger of "lighting up" a quiescent focus in the good lung. Seldom at the first few sittings do we inject over 200-300 c.c., which, usually, has little effect upon the manometer readings. Of course, if the needle happens to enter a small pocket of adhesions, we cannot give so much.

Re-fills are given every other day for the first week or ten days, and then the interval is gradually lengthened. The interval is dependent upon the rate of absorption, which is determined both by the fluoroscope and by the manometer.

Complications.—Adhesions are frequently encountered; in some cases they merely retard the collapse of the lung, while in others they permit a collapse of only part of the lung. We feel that, even though only a small pocket is established, thus forming a partial splint, we are justified in continuing the treatment.

Effusion is very frequently encountered, and it occurred in 35 per cent of our series. In small amount no attention need be paid to it, but when the amount is sufficient to cause distress it should be removed and replaced by air.

Other complications are air embolism, subcutaneous emphysema, and infection due to some carelessness on the part of the operator. Pleural shock occurs rarely.

Results.—The results should be divided into immediate and remote. The immediate results are usually very gratifying to the physician and patient alike. Two examples will illustrate:

B. B. was expectorating 250 c.c. of sputum daily prior to the induction of pneumothorax; after the lung had been compressed for three months, the amount was reduced to 10 c.c.

Another patient, F. M., had a fever of 104° for about a week prior to induction of pneumothorax. After the second injection of pneumothorax the fever started to fall, and in another week the fever was down to 100.°

With the reduction of the toxemia, there is an increase of weight and a feeling of well-being. It is not long before the patient says he never felt so well.

The remote results depend, in the main, upon the length of time the lung is collapsed. We tell our patients that they must expect to continue with the collapse for at least two years, and we frequently find it advisable to keep the lung collapsed for a much longer time.

Our results are divided into three classes:

1. *Operative Failures.* — Operative failure means that after several attempts we failed to get any collapse of the lung.

2. *Partial Collapse.*—In this group it usually happens, unfortunately, that the portion of the lung most in need of collapse is held by firm adhesions.

3. *Complete Collapse.*—This term is self-explanatory.

We have had 42 cases in which pneumothorax has been attempted. Of this series, eight, or 19 per cent, were failures, six, or 75 per cent of the eight, are dead. Thirty-four cases, or 81 per cent, were successful or partially successful, with fourteen, or 41.1 per cent, still under treatment; twelve, or 35.3 per cent, are living, and seven, or 20.5 per cent, are dead.

Then, of the patients who needed pneumothorax but were unable to secure it, 75 per cent are dead; but of those who secured it and with either a successful or partially successful result, 20.5 per cent are dead. The difference is 49.5 per cent, which conclusively proves that pneumothorax is worth while.

PRACTICAL CYSTOSCOPY AND URETHROSCOPY*

By E. L. Perkins, M.D.

SIOUX FALLS, SOUTH DAKOTA

Realizing how seldom the cystoscope and urethroscope are employed by the general practitioner in arriving at an ultimate, scientific diagnosis of pathological conditions peculiar to the genito-urinary tract, and the invaluable aid these instruments are as a means to therapeutic aid, a paper along this line of diagnosis and treatment may not be untimely

As a general proposition it may be stated that, in *all lesions*, demonstrated or problematical, connected with any one or all the organs and structures included in the genito-urinary system and in the pathology relating to old infections of tubes and ovaries, new growths in the abdomen and pelvis and in adhesions following extensive abdominal pelvic operations, cystoscopic examination is absolutely essential to an accurate determination of all the facts present in any case in which the kidneys, the ureters, or the bladder are suspected of pathological involvement.

Dr. Hugh Cabot points out the error and danger of frequent cystoscopic examinations, especially when associated with ureteral catheterization and injection of the kidney for pyelograms; but he does not discount the absolute value and actual necessity for examinations of this character when indicated, always under the most strict surgical aseptic technic. In addition to asepsis one must traumatize structures examined as little as possible in order that a bruised or lacerated mucosa may not become the atrium for bacterial invasion and consequent complications. These matters all pertain to the intelligence, patience, experience, and resulting skill of the technician and are not beyond attainment in the case of any man who earnestly sets about to perfect himself in the work.

If the same rules of surgical asepsis are carried out in this field of operation as are followed in all other departments of surgical procedure, there is no reason why a perfect end-result may not be secured in every instance. The following are the indications for use of (1) Cystoscope, (2) Urethroscope.

"1. The different tissues and organs composing the genito-urinary system are so numerous, and the diseases to which they are subject are so diverse, that a diagnosis based upon symptom groups in combination with the urinary findings alone may be misleading.

"There are certain symptom groups of definite clinical significance which are so characteristic that when they are present we are able to differentiate without instrumental examination the probable extent and location of the disease. When we consider, however, that a diseased condition of one portion of the genito-urinary tract is frequently the starting point of an extensive infection of the whole apparatus, the determination of the exact location and the extent of the primary pathological condition becomes more difficult. Since all the various component parts of the system are connected by tubes of varying sizes, and all excretions and secretions must pass from the kidneys and ureters through the bladder, and from the seminal vesicles and prostate and bladder through the urethra, a simple examination of the urine will not always enable us to determine with accuracy the source of the disease. In all cases, however, the usual preliminary steps in the establishment of a diagnosis should not be omitted."

In the investigation of disturbances of the genito-urinary organs a detailed history of the case is the first necessity. Next, a careful chemical and microscopic examination of the urine should be made; attention should then be directed particularly to—

1. Abnormalities and disturbances in the mechanics of urination.
2. Changes in the character and ingredients of the urine.
3. The presence or absence of *pain*—its occurrence independent of, at the beginning, during, or at the end of micturition.
4. The presence or absence of pus or bacteria in the urine.
5. The presence or absence of blood in the urine. The duration of hematuria, when present; circumstances; occurrence during rest or after exertion; and relation to micturition. A thorough physical examination should follow.

Urethral Catheterism.— Next in importance comes urethral catheterism. By passing the catheter we are able to ascertain the amount and constituents of the residual urine; through the catheter the bladder may be irrigated, the bladder capacity ascertained, and the degree of irritability of the bladder determined. By the passing of sounds the presence of a stone in the bladder may sometimes be ascertained, and the urethra may be dilated as a necessary preliminary to the introduction of the cystoscope or urethroscope if further investigation is called for.

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*Presented before the Sioux Valley Medical Association at Sioux Falls, S. D., July 20 and 21, 1921.

Contra-indications to Urethral Instrumentation.—Certain conditions may contra-indicate urethral catheterism. These apply equally to the sound and to the cystoscope and should not be disregarded. As a rule acute inflammation of the urethra and bladder contra-indicates instrumental examination. This includes urethritis, acute prostatitis, and acute cystitis, especially that arising from gonorrheal infections. Instrumental injury of the parts under such conditions is often followed by or extension of an inflammation which previously had been purely local.

Rectal examination is necessary in determining diseased conditions of the prostate and seminal vesicles.

Indications for cystoscopy in children are rare. In young adults cystoscopic examinations may be imperative.

Special Indications.—Increased frequency of urination is the most common symptom of urinary disease, particularly of the bladder. This may be due to increased acidity or to the presence of irritating substances in the urine. Frequency may be due to a swollen trigone, to a general cystitis, or to a foreign body in the bladder. The symptoms are often reflex, due to pyelitis, renal stone or other foreign body descending the ureter. Conditions resulting in increased frequency of urination and the quantity of urine passed are diabetes mellitus and insipidus, chronic interstitial nephritis, and urina spastica. In bladder neurosis the frequency of micturition is most marked during the day; in prostatic hypertrophy increased frequency occurs *at night;* in vesical calculi it is most pronounced when the patient is active. Often a diagnosis is easy from clinical symptoms. When all treatments instituted prove futile, then cystoscopy should be employed because all abnormal conditions within the bladder that can possibly produce these symptoms are readily recognizable with the cystoscope, even better than by any other means, not excepting exploratory operation.

Retention of urine due to obstruction of the urethra from stricture, foreign bodies, or hypertrophy of the prostate, demands cystoscopy, likewise when the central nervous system is the seat of the lesion, with characteristic bladder pictures present which demand study and interpretation by means of the cystoscope.

Pyuria, hematuria, or other abnormal conditions of the urine are symptoms which most frequently call for cystoscopic examination. Many an off-hand diagnosis of these conditions and their primary origin has been found erroneous when actual cystoscopic examination has been made. This procedure is final and practically unerring. Thus stone and new growths in the bladder are seen at a glance, while early catheterism of the ureters gives one the means for determining the bacteriological factor in pyelonephrosis, determines accurately which kidney is involved, and is the surest way of determining early tuberculosis in this organ. In 90 per cent of these tuberculosis cases the disease originates in one kidney, secondary to a primary focus elsewhere, and for a long time the second kidney remains free from the trouble. Only by cystoscopy and ureteral catheterism can a definite diagnosis be made.

An accurate differential diagnosis between stone in the ureter and phleboliths or calcified glands in the immediate neighborhood, is made by the use of the leaded catheter passed to the kidney and an *x*-ray picture taken with the catheter in situ.

Pelvic and abdominal tumors may be diagnosed by the same method, deformity of the bladder wall or distortion of ureters being the determining factors.

Hematuria.—Hematuria may result from a lesion in the bladder wall or from one or both kidneys by way of the ureters; pain may come from an ulcer in the bladder mucosa—look and see.

A most valuable use of the cystoscope is in determining the functional activity of each kidney.

1. With the catheter in position, the usual phenolsulphonephthalein test is readily made and the relative activity of each kidney determined

2. If no catheterization has been performed, but only the cystoscope employed for examination of the bladder, the indigocarmin injected intravenously soon shows as the colored urine enters the bladder spurting out with each contraction of the ureters. If one kidney is out of commission the ureter discharging the indigocarmin tells which kidney is on duty. So we are able to determine the presence or absence of a second kidney, to locate fistulous openings from the bladder or ureter, to determine the possibility of surgical intervention, and to aid in pelvic op-

erations by placing a catheter in the ureter as a guide.

Regarding the relative advantages of cystoscopy and exploratory suprapubic section of the bladder, it may be said that the former method is more exact because we are able to examine the bladder with the walls stretched out and the ureter openings in full view, while in the latter case, with an incision in the anterior wall of the bladder, the walls are collapsed and hang in folds obscuring all but the grosser details; the ureter openings are difficult, if not impossible, to see, being covered with blood clots from the wound or by mucous membrane folds about the interureteric ligament.

Fulguration of new growths of the bladder, a recognized therapeutic procedure for years, is impossible of accomplishment without the aid of the cystoscope. Today the same instrument makes possible the treatment of all new growths by the use of radium emanations, the capillary glass containers being buried in the tumor and left there to accomplish their work. This treatment is only practical where it is possible to secure the emanation early, as the gamma rays are spent in a very few hours.

Urethroscopic examination of the posterior urethra and structures in that immediate neighborhood is often of the most vital importance. A sound may give you the desired information regarding the presence *somewhere* of an obstruction, but how vastly more important it is to visualize the lesion and treat it from the standpoint of an actual entity, and not a hypothetical something. Urethroscopy is of equal importance with cystoscopy, in fact the two should go hand in hand in examining all males. It renders topical treatment practical and effective. Impotence can now be cured in most cases due to other than spinal cord lesions, the verumontanum being the chief offender and the point of treatment readily available through the urethroscope. All mucous membrane lesions can be readily observed and treated by the aid of this instrument; notably chronic as well as acute posterior urethritis with silver nitrate solutions of indicated strength nearly always below cautery.

As a diagnostic procedure I would again urge the use of the cystoscope in all genito-urinary conditions above the urethra and in all obscure pelvic and lower abdominal conditions requiring identification. In the identification of prostatic and urethral pathology and in the topical treatment of diseases in this region the urethroscope is our best guide and aid.

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CASE REPORTS PRESENTED BEFORE THE MINNESOTA ACADEMY OF MEDICINE AND DISCUSSION ON THE THERAPEUTIC VALUE OF CAMPHOR

MEETING OF JANUARY 18, 1922

Dr. H. L. Staples, Presiding

BY DR. A. W. ABBOTT

Mrs. H., aged 89, a very well-preserved old lady. Taken five days before I saw her with pain in the left lower quadrant of the abdomen. Constipation resisting all laxatives and enemas. Slight nausea, progressive weakness; pulse, 100; temperature, normal; W. B. C., 19,000. Rectal and vaginal examination, negative. Fluoroscopy without barium showed a gas-distended colon, approximately as found at the operation, and a fairly distinct shadow at the point where the obstruction was found.

Abdomen was opened on December 22, 1921, at midnight. The following conditions were found: Large loop of descending colon and sigmoid one foot in diameter with a mesentery about eight inches long, dark-purple in color. The colon within the loop was about three inches in diameter. The constriction, reducing the two limbs of the colon to about once inch in diameter, consisted of a finger-like projection of omentum wrapped entirely about the colon. In addition to this there was a pedicle like a long pedicle of an ovarian tumor which encircled the constricted area in an opposite direction to that of the omentum. The other end of this pedicle was attached to the bladder, though this was probably not its origin. After removing the omental strip it was found to be twisted on itself four complete turns. These encircling bands were released, followed immediately by the expulsion of gas and liquid feces. On further examination another pedicle with a tumor attached was found, which I show you, to the right side of the uterus.

My theory of the origin of this constriction is that the pedicle of a left ovarian tumor (which was not sought on account of the condition of the patient) first encircled the bowel, that the gradual extrusion of the bowel through the encircling pedicle gradually tended to lengthen the mesentery, and, finally, that the omental band subsequently was attracted to the injured part of the bowel. Why it should have been twisted is difficult to understand.

BY DR. R. E. FARR

Case 1.—Jos. G., aged 59, male, married. Maximal weight, 170; present weight, 125.

Present illness: Frequency, burning urination, urgency, dysuria, small stream.

History: Seven years ago began to have difficulty in emptying the bladder. Later began to have frequency. Five years ago visited a well-known clinic, and had a diagnosis of cystitis made. Medicine and irrigation relieved the condition somewhat. Two months before we saw him he began to have more difficulty in emptying the bladder, and four weeks later was once more examined, when a cystoscopic was done. A diagnosis of chronic cystitis and some disease of the sacral nerves was made.

The patient entered St. Mary's Hospital on September 9, 1921. The bladder was found distended with urine, and was emptied by the gradual method. The prostate was not enlarged. Urine contained blood and pus. A cystoscopic examination, under sacral anesthesia, showed the following: Chronic cystitis; golf-hole ureter on the left, contracted white meatus on the right. Ureteral catheterization resulted in the finding of blood and pus from both ureters. Pyelograms and ureterograms (plates shown) showed: double hydronephrosis, double hydro-ureter.

The right ureter was dilated by the simultaneous introduction of two catheters. After the first successful attempt it was found impossible to introduce an instrument of any kind into the left ureter. The patient was drowsy and uremic from the time he entered the hospital, and the phthalein output varied from day to day, averaging between 20 and 40 per cent.

After dilatation of the right ureter the patient improved somewhat. On October 15, a suprapubic cystostomy was done under local anesthesia, which had been preceded by sacral anesthesia. The right ureter was widely dilated with a series of urethral sounds. An effort was made to enter and dilate the left ureter, but it was unsuccessful, and, on account of the patient's condition, further operative measures were not attempted.

On November 5, almost two months after entrance, the left ureter was exposed under local anesthesia, and an effort was made to introduce an instrument into the bladder from above the ureter. This effort being unsuccessful, a dressing forceps was introduced through the cystostomy wound and made to impinge upon the bladder fundus, which was then incised and a catheter drawn through, with its end projecting through the cystostomy wound. The ureter was then opened at a favorable point above the stricture, and the upper end of the catheter inserted well into the dilated portion of the ureter. A vesico-ureteral anastomosis was thus established by anchoring the ureter to the bladder wall with chromicized gut. The first ureteral incision was then closed, and the incision in the abdominal wall closed, with cigarette drains.

From this time the patient rapidly recovered. The catheter was withdrawn in ten days and the suprapubic wound healed. Our last report of the patient showed he had gained thirty-five pounds, now weighing one hundred and sixty.

Case 2.—Frank K., aged 11, male, entered St. Mary's hospital November 18, 1921.

History: At 3:30 p. m., while partially lying down on a couch and reading, a boy companion shot him with a Number 22 rifle. The bullet entered the left upper abdomen just below the diaphragm in the axillary line and lodged in the opposite side in the right flank, above the iliac crest. The boy was seen in consultation at 9 o'clock p. m., and was operated on as soon as the operating-room could be prepared.

Infiltration anesthesia, transverse incision, cutting off both recti. The stomach showed a perforation in the greater curvature at the side. The perforation was closed with catgut. The stomach showed another perforation in the lesser curvature two inches above the pylorus. A third perforation showed in the lower surface of the duodenum. From here the bullet traversed the transverse colon, which showed two perforations, and lodged in the abdominal wall. A thorough search was made for a fourth perforation in the stomach and duodenum, but no other opening could be found.

Drainage was used in the greater and lesser peritoneal cavities, and the boy made a fair recovery, although he developed considerable fever and there was a good deal of discharge of pus from the drainage openings. The patient felt fine up to the twelfth day, when he became pale, and his pulse rapid, rising to 100, 120, and finally to 140. He passed a large, black, tar-like stool. His pulse then dropped to 110. A few hours later he began to vomit red blood, and was given a transfusion of 450 c.c., the father acting as donor, the citrate method being used. The pulse dropped to 100, and his condition seemed satisfactory in every way. The next night, practically thirty-six hours after the first hemorrhage, he went into collapse, and had every evidence of internal hemorrhage. A second transfusion was made, a similar amount being used, but from a different donor. During the administration of the blood there was considerable reaction. The patient felt chilly, the pupils became moderately dilated, and he had some disturbance of respiration. The introduction was made slowly, and the child quieted down and seemed to take the last portion of the blood without any disturbance. The patient collapsed a few hours later and died suddenly. Whether the patient died of hemorrhage, or anaphylaxis, or both, could not be positively decided.

Autopsy showed the abdominal wound healed, excepting at one point, where drainage was still taking place. The peritoneal cavity contained some fluid. There was only slight evidence of peritonitis about the field of operation. The liver edge contained a small abscess. Both pleural cavities contained dark-colored fluid.

The interesting point about this case, and my reason for reporting it, is to call attention to the reason why but three openings were found in the peritoneal wall of the stomach. The bullet entered the greater curvature on the left, and traversed the mucous membrane of the lesser curvature, where it dipped down and caught the serous surface of the stomach. It did not leave the stomach, but traveled on beneath the mucous membrane.

leaving the stomach through the pyloric opening, emerging again through the duodenum, thus making but three wounds in the serous coat. The gastric hemorrhage occurred from a large ulcerated surface in the mucous membrane, where the bullet had pierced it. The stomach was found full of blood at autopsy, and below the stomach many feet of intestine were empty and collapsed, while the colon and lower ileum were completely filled with blood, evidencing the fact that the child had had two similar hemorrhages.

Comments: Under similar conditions it would perhaps be advisable to enlarge the bullet wound and more carefully suture the layers of the stomach wall; and, furthermore, as the ulcerated surfaces are perhaps the result of digestive processes, neutralization of the gastric contents during convalescence might seem advisable in these cases.

BY DR. WALTER R. RAMSEY

I would like to report a case of meningitis in a boy, which the pathologist pronounced pneumococcus meningitis. If it was that, it is perhaps the first one on record to get well.

I saw the patient first on Christmas afternoon. He was a little Italian boy, apparently suffering from meningitis. His head was markedly retracted. We did a lumbar puncture at his home in the Italian quarter. The fluid was very turbid. I sent him directly to the City Hospital, and Dr. Stewart and I examined the fluid. The next day we sent him to the Contagious Service at the City Hospital, so he was out of my hands, but I called up the next day to find out about the report, and the pathologist said at once that it was the pneumococcus type and gave the child four days to live. When I went on service again on January 1 the boy was back on the Children's Service, having been transferred from the contagious ward. The little fellow was sitting up and apparently quite normal. The pathologist insists that it was the pneumococcus. We have sent some of the fluid to other places for examination, because, if it was the pneumococcus, it is a rare case. Dr. Holt reports a case which apparently recovered, but died three months later, and when Dr. Apt was here recently I asked him about it, and he said he had seen one patient get well, but that there was still some discussion regarding the diagnosis.

Case 2.—The next case I wish to report is a case of suddenly enlarged thymus, in a young baby eight or nine months old and a very healthy normal child. Suddenly seized with dyspnea. The next day Dr. Stewart saw the child, who was a patient of Dr. Geist, and the picture presented was very interesting. The baby was breathing only very superficially, there being little or no movement over the right chest and very little on the left; no respiratory murmur on the right side and very little on the left. Baby was extremely pale.

I felt sure it was a case of enlarged thymus and, knowing what wonderful results we get in asthma with adrenalin, I suggested that we give the baby 5 minims of it. Much to our surprise, in ten or fifteen minutes that baby was breathing immensely better. We followed that with very marked restriction of all fluid, and the child has quite recovered.

This exactly fits in the picture which other authors have described which proved to be enlarged thymus. I have not seen the use of adrenalin advocated before, but it certainly acted like magic.

BY DR. J. T. CHRISTISON

A case of pneumococcic meningitis complicated by acute appendicitis with recovery.

The patient, a boy four years of age, was taken ill October 26 with vomiting and headache. The following day his mother noticed retraction of the head and thought his eyes were converged. He was admitted to the hospital on October 30 with marked retraction of the head and a temperature of 102 degrees.

Examination of the urine showed a trace of albumin and a few hyalin casts. The leucocyte count at this time was 25,900. An examination of the spinal fluid showed a cell count of 2,100 per cu. mm. Differential: p. m. n., 82 per cent; lymph, 15 per cent; and transitionals, 3 per cent. A culture of this on broth showed the infecting organism to be a pneumococcus.

On the day of admission following the spinal puncture 15 c.c. of antimeningococcic serum was administered, and on the following day 15 c. c. of antipneumococcic serum was administered intraspinally, and 20 c.c. intramuscularly. On the following day 15 c.c. of antipneumococcic serum was administered intraspinally and 35 c.c. intramuscularly. On November second 15 c.c. of antipneumococcic serum was administered intraspinally. The child up to this time had been receiving continuous proctoclysis. From November 3 to November 11 nine spinal punctures were done, and cultures made from each gave no growth. On the evening of November 12 the child complained of abdominal pain, and when seen the following day there was marked rigidity of the right rectus muscle with pronounced tenderness; and a diagnosis of acute appendicitis was made. At 2:15 of the same afternoon Dr. Zimmerman opened the abdomen and found an appendiceal abscess containing about two ounces of thick, yellow, foul-smelling pus. Culture from this also showed the presence of pneumococci. Recovery from this date was uneventful, and the child left the hospital on December 15 and has remained well.

DISCUSSION ON THE THERAPEUTIC VALUE OF CAMPHOR

Dr. E. T. F. Richards read a paper entitled "An Electrocardiographic and Clinical Investigation of the Therapeutic Value of Camphor," by Dr. E. T. F. Richards and Dr. R. Edwin Morris, which was discussed by Dr. Morris, Dr. S. M. White, Dr. F. W. Schlutz, Dr. W. A. Jones, and Dr. Richards.

Dr. Morris: The experimental work for this paper was done at the University of Minnesota on the same basis as the digitalis work we have carried on for some years, using the Hatcher-Brody cat method of biochemic standardization, modified to our use, and graphically recording the cardiac, respiratory, and blood-pressure changes as they occur. The animals are attached to tables, anesthetized just sufficiently to keep them quiet. A normal record is made, then the solutions are introduced into the femoral vein at a definite rate, and other records are frequently made, noting any change in the action of heart or respiration. Notation is made of the various events as they occur.

The marked feature observed in the camphor series were the twitchings, the convulsive seizures, and then the toxic period in which there appears complete heart-block; respiration stopping first, the ventricles stopping before the auricles and exhibiting periods of ventricular fibrillation with gradual periods of ventricular "stop"; the auricles continuing for some time, as evidenced by the graphic records. In a number of animals unsuccessful attempts were made to restore cardiac action by various methods.

It was surprising to note the amount of cotton-seed oil that, used as a control, could be injected without any evidence of embolus or injury. The animal would be saturated with oil, which, on autopsy, appeared in every organ. The camphor solutions had a distinct camphor action, only slower in producing the lethal period.

From this work we can say definitely that camphorated oil does not produce cardiac stimulation; given in greater doses it produces definite toxicity. It has no definite place among stimulants. The use of camphorated oil in pneumonia has given no real results, and the consensus of opinion is in accord with the report of Glaukner (*Calif. State Med. Jour.*, May, 1920), who reports its use in 50 cases as "no better results with use of camphorated oil than in series of cases without its use, the mortality being 29 per cent in both series."

One observation made in these experiments was the action of camphor in making animal blood coagulate much more rapidly. I find in "Zeitschrift für T. B.", August, 1920, p. 276, Zehner reports camphorated oil (20 per cent) "a sovereign means of arresting hemoptysis, in doses of 15 to 30 gms."

Dr. White: The Academy is to be congratulated on having a paper of this character read before it.

As this type of work has been carried on in recent years one after another of our therapeutic idols seem to have fallen; and camphor also, as a cardiac stimulant, must be relegated to the discard. One point of interest is the clear way in which the animal experiments bring out the toxic and fail to reveal a stimulating action of camphor.

The clinical test, or the careful application of criteria, such as were applied by the essayists to the clinical part of the problem, is of much greater value in its solution than are the animal experiments. The electrocardiograph is limited in the information it can give, but it does give definite information of a depressant action, or what Dr. Morris called a *toxic* action of camphor. But caution must be exercised in the transference of the results of animal experimentation to man. The animal experiment may guide us in our studies in man, but it must not supplant the study in man, nor should we be led into a wholesale acceptance of the results of animal experimentation as transferable to man. This erroneous process has frequently led us into error, and it led us into a serious error many years ago in the case of digitalis. Animal experiments at that time showed that toward the end of a period of administration of lethal doses of digitalis in animals there was a distinct rise in blood pressure. For a long time it was thought that such a rise in blood pressure occurred in the therapeutic use of digitalis, but it was not until Eggleston, four years ago, studied the problem clinically that it was shown that no considerable rise in blood pressure occurred in man with the therapeutic use of the drug.

The study of digitalis, as it has been made by cardiologists with the use of the electrocardiograph, has given us the information that digitalis has a depressing action on certain functions of the heart, principally on the function of conduction of stimuli, and because it does depress this function it has found a very legitimate field in heart therapy, that is, in auricular fibrillation. Much of our use of digitalis in the past has been on a basis of false understanding of its effects. Withering, who rescued the drug from the herb doctors of his time and gave it to the medical profession, probably used it more intelligently and with clearer indications than his successors of the past century. It is only since the pharmacologist and the electrocardiographer have cleared it of much of its mystery that clear indications for its use have again emerged. A heart murmur is no longer an indication. It is so with many other drugs now being subjected to scrutiny.

So our therapeutic problem is being surrounded here and there, and forms of evidence are being secured that we can actually rely on.

Dr. Schlutz: Several years ago I carried out some experimental work on the action of camphor on dogs that had been starved for a definite period. It seemed to me that the toxic symptoms occurred more readily the longer the dog was starved. There seemed to be a definite ratio between the period of starvation and the development of the symptoms. I did not have the use of an electrocardiograph at that time. This instrument was then almost unknown or, at any rate, very little used.

I had some interesting personal experience in Europe while I was doing some experimental work there. I took two cubic centimeters of camphor in oil before breakfast, and in a comparatively short period developed rather alarming symptoms, so much so that the hospital authorities became quite concerned. My skin became cold and clammy. There were marked nausea and dilated pupils, and my hands were so unsteady that I could not write for several hours, and the gait became staggering. There was profound depression for a considerable time. The symptoms then subsided, and left no ill effects after six or seven hours.

These symptoms may have been due to an idiosyncrasy to the drug, but I surely had a definite impression at the time that camphor was a drug capable of producing rather pronounced symptoms and that its use was probably not altogether harmless.

Dr. Jones: Before pronouncing the final eulogy on camphor and congratulating Drs. Richards and Morris and other noted authorities on digging the grave and filling it in so that camphor may die, and remain dead, I would like to ask that Dr. Richards be permitted to tell us the effect of spirits of camphor put on the handkerchief of an old lady.

Dr. Richards: Our work on the effect of camphor on emaciated animals is confirmed by the work of Dr. Schlutz, and for that reason the drug should not be administered to patients who are at all emaciated.

I rather think that Dr. Jones' question is answered by those who believe that there is a reflex vasomotor effect and that we may get such effects from camphor.

Harry P. Ritchie, M. D.,
Secretary.

THE
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MINNEAPOLIS CLINIC WEEK

This year seems to be a most promising year for Minneapolis Clinic Week. The date has been finally set for April 10th-13th for the reason that the American College of Physicians (there are expected to be about four hundred in attendance) will meet at Rochester on April 4th, 5th, and 6th, and will meet in Minneapolis April 7th and 8th. This in itself insures very active clinical possibilities, probably participated in by men who come from all over the country for the meeting of the congress of physicians. At all events, it is expected that the men who might ordinarily be asked to participate in Minneapolis Clinic Week will already be on the ground to take part in the afternoon meetings and perhaps a part of the evening's work.

Another feature which adds much to this opportunity is that the University of Minnesota may decide to have its "short course" for physicians at the same time. If one can find more unusual opportunities for clinical study and observation than this Clinic Week we hope he will send us word.

The executive committee of the Clinical Section of the Hennepin County Medical Society was chosen at the meeting in December, and consists of Drs. R. E. Farr, W. A. Jones, N. O. Pierce, G. Elmer Strout, and S. Marx White. Dr. A. W. Abbott, who had been chairman for the past four years, felt that he had done his duty, and requested to be relieved of any further work this year. However, the committee can call on him for his advice and consult with him at any time, so that we are not deprived entirely of his valuable assistance.

Preliminary notices in the way of letters will be sent out fairly early, and will be followed up with gentle reminders of the dates of the meeting.

The Minneapolis Clinic Week machinery has been so well oiled that it is expected to function during the week of April 10th without friction or unnecessary noise except that of acclaiming that the greatest Clinical Week that Minneapolis has ever held is near at hand.

On account of the number of conventions that are to be held in Minneapolis it is suggested that all make their hotel reservations early.

ENLARGING THE FACULTY OF THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA

A letter from one of our out-of-town readers came into the office the other day merits careful (?) attention. It suggests that the faculty of the Medical School of the University of Minnesota be enlarged, and that there be established therein chairs covering osteopathy, chiropractic, Christian Science, and other allied phenomena.

This suggestion was made to take care of the short-cutter to the medical profession and to give every student an opportunity to receive a strictly medical education, and then allow him to choose his own form of therapeutics. Thus it would be possible to have all these branches brought under the control of the University Medical School, and all students in any department in which they may ultimately choose to alight must take some preliminary work, the fundamental work of all medical students, and pass the same final examinations.

Under this same caption it may be remembered that when the University accepted professors in the School of Homeopathy it was very soon absorbed into the regular medical profession, and all the students became doctors of medicine.

This suggestion by our correspondent was made in good faith, but perhaps the real medical profession, as well as the outlying districts, as it were, in medicine might resent such a close union between the so-called factions. It would then be unnecessary for these various by-path followers to advertise so extensively in the daily press. Perhaps that would do them an injury. How could they expose their wares to the public? How could they announce their faith to a new doctrine in therapeutics?

At all events, the idea was presented to the Administrative Board of the University faculty for its earnest and prayerful consideration.

A REMARKABLE PROGRAM OF A MEDICAL SOCIETY

At the regular monthly meeting of the Hennepin County Medical Society held Monday evening, February 6th, a program was presented which looked on the surface appalling. There were thirteen papers to be read, and it looked to the "old timer" as if the session would be prolonged into the early morning hours.

Under the energetic management of Dr. J. A. Myers each man was allotted five minutes to tell what he had observed in his special line of work at Lymanhurst, a school for tuberculous children given by Mr. Lyman, a pioneer Minneapolitan, and now maintained by the city of Minneapolis.

Following is the program as presented:

1. Lymanhurst, Dr. F. E. Harrington, Commissioner of Health, in Charge of Lymanhurst.
2. Cardiac Signs in Early Pulmonary Tuberculosis in Children, Dr. Thomas Ziskin.
3. Morphological Studies on the Blood of Tuberculous Children, Dr. Hal. Downey and A. R. Ringoen.
4. Gastro-Intestinal Findings in a Group of Tuberculous Children, Dr. C. B. Wright.
5. On the Value of Vital Capacity of the Lungs of Children as an Aid in the Diagnosis of Pulmonary Tuberculosis, Dr. C. A. Stewart.
6. A Preliminary Report of the *X*-ray Findings in a Group of Tuberculous Children, Dr. R. G. Allison and Dr. R. E. Morse.
7. A Comparison of the Height-Weight Indices of Suspected Tuberculous and Normal School Children, Dr. R. E. Scammon.
8. A Study of the Clinical and Physical Findings and the Tuberculin Reactions in a Group of Tuberculous Children, Dr. E. D. Anderson.
9. Orthopedics in Tuberculous Children, Dr. Paul W. Giessler.
10. Incidence of Infection of Mouth, Nose, Throat, and Ear in Tuberculous Children, Dr. Carl W. Waldron.
11. Observations on the Neurologic and Mental Status of a group of Tuberculous Children, Dr Charles F. Nixon.
12. The Status of the Thyroid Gland and the Basal Metabolism in a Group of Tuberculous Children, Dr. C. A. McKinley.
13. Classification and Treatment of Suspected Tuberculous School Children, in Minneapolis, Dr. J. A. Meyers.

The program as it was put through was a rare performance. No one had deemed it possible that twelve men could read their papers, or a summary of their papers, in one hour. This was accomplished, however, under the direction of the new president, Dr. A. E. Benjamin. No man was allowed a minute over his time, and although many men from outside were invited to discuss the papers, among them the superintendents of sanitaria throughout Minnesota, no one was given more than three minutes to discuss a paper that he had chosen for his comment. Thus, the entire program, including the business meeting which preceded the reading of the papers, took two hours and fifteen minutes.

The evidence that shows that this program was appreciated by distant societies is a request by the United States Tuberculosis Committee in New York for a copy of the papers. These papers will be printed in The Journal-Lancet in one or two issues, and then re-printed and bound in pamphlet form so that they may be sent out to societies and individuals interested in this special subject.

It has been said that it would be impossible to present a subject, even one of the divisions or special lines of research, on tuberculosis, and be able to say anything important enough in a five-minute paper. But this symposium shows that such is possible, and that it can be done with conciseness and can be presented practically in full, or at least the subject matter proper can be transmitted to paper and read in this length of time. Again demonstrating the fact that long, tedious papers are not always as valuable as terse, crisp, and well-written papers.

This program ought to be an incentive to other societies to do likewise. We venture to say that there are not many medical societies that would be contented to hear a paper of five minutes' duration, and very few members who would be willing to limit themselves even to a similarly timed discussion.

DR. PEARCE BAILEY

The Journal-Lancet announces with regret the death from pneumonia of Dr. Pearce Bailey, of New York, on Saturday, February 11th.

Dr. Bailey was one of the foremost neurologists in the country and one of the most active workers during the period of the World War. He was the man who organized the neuropsychiatric staff, who advised its formation, and who distributed these men to the various hospitals at home and at the front. He was at Washington most of the time, but was abroad to inspect the service organized under his direction.

Dr. Bailey was fifty-seven years of age, a comparatively young man, but one of those energetic, enthusiastic workers, thoroughly interested in neuropsychiatric advancement, and a man who contributed much to the world's knowledge on this subject. Personally, he was genial, wholesome, and thoroughly cosmopolitan.

While the men in the West know comparatively little about Dr. Bailey, most of them know about his work. Men in the East will mourn his loss because he was an active member in all the neurological associations of the East. He was in Minneapolis once or twice, and had many friends in the Twin Cities.

NEW AND DECADENT LITERATURE

Every medical man who reads books should be in a position to advise his patients about their reading matter. That means that the doctor will have to read some of the new books, or novels, in order to properly condemn them. If he is a book-lover he will read the best of writers and thus be able to advise his patients what they should read or not read.

There has been a recent avalanche of new books published, many of them highly suggestive, tremendously sensual, and containing nothing worth while. Some of these books have been so popular that they have been screened for the "movies," showing again the necessity of carefully scrutinizing what one should read and what one should not read. Then, too, the time seems to have arrived when the younger people are taking the lead in the literature of the family; and some girls and even young boys are horrified at the books their fathers and mothers are reading. They have gone so far as to say, "Why, if I had known you were going to read this, I should have warned you, because I have read the book myself and consider it unsuitable for one with mid-Victorian ideas." And thus the younger are dictating to the older; they apparently know more than their parents, and in many cases they do. They talk of things that twenty-five years ago would have been considered indecent, and the conduct of the present generation would at the same period have been considered highly immoral. And yet these young things lead the older ones into temptation by either suggesting improper novels for their consumption or by insisting that they shall not read them, thereby creating a temptation in the minds of the older men or women to see what the young people are reading.

A book that recently appeared in the bookstalls, name unmentioned, author likewise, depicts a certain group of people who belong to a definite type and are called by a reviewer the "froth of the war," "the spume of the country club," "the trivialities of the strenuous but unproductive rich," and recites in true detail the life of a few of our citizens. The reviewer further says this book might be called an essay on insecurity, although the word essay is too dry to use in the story, which is fairly awash with alcohol. The main idea of the character in the book is composed of three elements,—money, drink and woman.

The book is written by one who knows his English; it is delightful reading on account of its composition and its timely use of words. Fifty years hence it may be of historic value, showing how men and women lived in the early nineteen hundreds.

Why is it necessary to write about the indecencies of life when it is known that the young people of the present day will be the curious readers? The time will come, of course, after a surfeiting of this stuff, when it will cause a moral nausea, and the better class of literature will come again into its own. There are enough books written in a light vein that are entertaining and decent in their tone that do not attack the sex question or the life of degenerating classes so that one may feel free to read without leaving a bad taste in one's mouth. But at some time during the twenty-four hours everyone of us should read something that is inspiring, descriptive, historical and illuminated by numerous pictures of foreign countries or even of our own country, without having to apologize for the type of book that we have in our hands. The old saying that there is "something rotten in Denmark" can be applied with great force to the general literature of the present period, particularly that belonging to the novel-reader's class.

BOOK NOTICES

Medical Clinics of North America, Mayo Clinic Number, Vol. V, No. 2. Philadelphia and London: W. B. Saunders Company, 1921.

The following is a brief summary of this excellent number:

1. That ophthalmoscopic signs of retinitis may appear during acute exacerbations of a low grade type of nephritis and may persist long after urine and blood chemistry have returned to normal or nearly so, is illustrated by six cases of W. L. Benedict's.
2. The cure of persistent sneezing due to irritation of the sphenopalatine ganglion is discussed by R. A. Barlow.
3. W. S. Lemon and A. R. Barnes tabulate and discuss the production of pneumothorax in thoracic disease.
4. Thirty-seven cases of primary carcinoma of the lung are reported from the röntgenological standpoint by R. D. Carman.
5. H. S. Plummer and P. P. Vinson tabulate 301 cases of cardiospasm, reporting cure in 75 per cent of them by forcible dilatation.
6. The distribution of pain in angina pectoris is illustrated by charts and case-reports presented by F. A. Willius.
7. Two cases of unusual gastro-intestinal complications are discussed by G. B. Eusterman.
8. D. M. Berkman advises treatment of patients with gastric retention by lavage before operation, as well as by medical care after operation.
9. A simple technic for removal of polyps in the rectum and sigmoid by means of a clamp, is described by L. A. Buie.
10. W. M. Boothby and I. Sandiford compare the dietetic needs in hyperthyroidism with the normal.
11. The various causes of polyuria are discussed by L. G. Rowntree in connection with the report of a case of diabetes insipidus.
12. R. M. Wilder classifies his diabetics in five groups, with differences in severity, etiology, and prognosis.
13. The close relationship between oral sepsis and urinary infections which H. C. Bumpus has found, leads him to remove focal infections in cases of kidney and bladder infections.
14. L. J. Stacy and E. G. Joseph give figures indicating a very small percentage of relief of dysmenorrhea by dilatation and curettage compared with relief by medicinal measures (18 per cent by dilatation; 57 per cent by medicine).
15. A group of cases illustrating difficulties of diagnosis and of treatment in syphilitic conditions are presented and discussed by J. H. Stokes.
16. A case of paralysis of the ulnar nerve occurring twenty-six years after injury, with cure by operation, is reported by W. D. Sheldon.
17. H. W. Woltman discusses arteriosclerotic changes in the nervous system, which may resemble those due to pernicious anemia.
18. Three cases are presented by Reginald Fitz emphasizing the importance of thoroughness in history taking and in physical examination.
19. A. H. Sanford reports a group of cases of hypersensitivity to food proteins, which seem to show that no case of bronchial asthma has been completely studied without skin tests with proteins.
20. Twenty-five cases of echinococcic disease from the Mayo Clinic are reported and tabulated with a review of the literature by T. B. McGath.
21. E. C. Rosenow reports the results of inoculation of animals from cultures obtained from foci of infection showing elective localization.

Olga Hansen, M. D.

The American Year Book of Anesthesia and Analgesia. Edited by F. H. McMechan, A.M., M.D. Published by the Surgery Publishing Co., 15 East 26th Street, New York City.

This is a volume of practically five hundred pages, devoted to the principles concerning the administration of anesthetics, both general and local. The work almost serves as a text-book of the principles of surgery. The typographical work is good, and the illustrations are remarkably clear and convey much valuable information. The principles laid down are those that should be understood by anesthetists, but are equally essential to any one practicing surgery.

While some of the chapters, particularly those dealing with blood chemistry are rather technical, yet they are of so much importance that even the novitiate may well spend time in studying these chapters.

The chapter on circulatory disturbances is also an especially important one. Sections of the work are devoted to the technic of anesthesia in which ethyl chloride anesthesia, intratracheal anesthesia, local anesthesia, and spinal anesthesia are treated.

The work deals not only with the proper use of anesthesia in special conditions, but gives many valuable suggestions in surgical technic. This seems important because many times in the past the anesthetist has been blamed for troubles that were due to poor surgical judgment in the choice of a procedure.

The last section of the book deals with the post-operative care of the patient. The book consists largely of what seems to be reviews of important contributions that have been made by various authors. The work is concentrated and contains so much information that anything like a complete review is almost impossible in the space that we have at our disposal.

—J. F. Corbett, M. D.

The Future Independence and Progress of American Medicine in the Age of Chemistry: Report by John J. Abel, Professor of Pharmacology, Johns Hopkins Medical School; Carl L. Alsberg, Director, Food Research Institute, Stanford University; Raymond F. Bacon, Director, Mellon Institute for Industrial Research; F. R. Eldred, Chemical Consultant, Eli Lilly and Co., Reid Hunt, Professor of Pharmacology, Harvard Medical School; Treat B. Johnson, Professor of Organic Chemistry, Yale University; Julius Stieglitz, Chairman, Department of Chemistry, University of Chicago; F. O. Taylor, Chief Chemist, Parke, Davis and Co.; Charles H. Herty, Chairman, Editor of Industrial and Engineering Chemistry, New York.

This is a very modest little pamphlet, of some 83 pages, with an awkwardly expressed title; presented by a notable body of scientific men associated by Government appointment during the war in the study of the chemical agents of human destruction, and voluntarily continuing their association in the interests of human health and human life.

Taken as a whole it is a plea for the coöperative efforts of chemists, physicists, pharmacologists, pathologists, bacteriologists and clinicians in intensive research toward the discovery of specific remedies for human disease; toward the isolation in pure forms of the active principles of internal secretion; toward the analysis and synthesis of the building stones of the human body; toward the solution of those chemical and physical problems upon which the reactions of the human organism turn.

It is an ambitious program, basing its hope of realization upon the measure of achievement, in these several lines of investigation, already attained and projecting its vision into the very recesses of the unattained,—one might almost have said, a generation ago, the unattainable.

The promise of success in these coöperative and correlated efforts is pivoted upon the assumption that chemical and physical laws underlie all biologic processes and that chemistry and physics hold the key to their understanding, and that they need only the aid of the associated medical sciences to adjust the key to the door of physiologic function, to reveal the secrets of the living tissue cell.

Perhaps the fulfillment of the promise does not lie so very far ahead, although there are those who, like Haldane, have left hope behind and have reverted to the defense of vitalism.

The little, yet in itself of large consequence, that has been discovered, suggests the unmined values which possibly lie just beneath the surface and tempt men, as the unseen and the unknown have always tempted them, to the search.

Nothing doubting that the fundamental and superstructural sciences of medicine will ultimately uncover the secrets of the things we call life, will eventually secure its conservation and limit the destructive influences which still so painfully prejudice it, there remains some room for question whether it is all a matter of chemistry and physics; whether chemical and physical research, howsoever aided and encouraged, will suffice to write the life history of the living tissue cell. Companioned by the related clinical sciences, they may go far toward the completion of the story and yet leave the prologue and the epilogue of the tale unwrit.

—Richard Olding Beard, M. D.

NEWS ITEMS

Dr. J. E. Pengelly has become a member of the staff of the Cuyuna Range Hospital at Crosby.

Dr. O. M. Lanstrum, of Helena, Mont., has been appointed a member of the Consolidated Health Board of that city, to represent the local medical society.

Child nutrition clinics are becoming as popular as tuberculosis clinics.

Dr. Otto Heffter, of Great Falls, Mont., is attending surgical clinics at the Mayo Hospital, Rochester.

Dr. J. T. Brice, of Lewistown, Mont., is doing postgraduate work at Tulane University, New Orleans, La.

Dr. H. H. Freeburg, of Watertown, S. D., has been visiting the surgical clinics of the Mayo Hospital, Rochester.

Dr. E. L. Armstrong, of Minneapolis, is now located in Duluth, doing eye, ear, nose, and throat work in the Duluth Clinic.

Two men's organizations of Langdon, N. D., have started a movement for building a community hospital in that city.

Dr. J. C. Ehrenberg, of Willmar, has severed his relations with the Willmar Clinic and will probably move to Minneapolis.

The Hennepin County Medical Society recently, at a weekly meeting, voted almost unanimously in favor of military training in high schools.

Dr. B. C. Bernard was chosen medical director of the Buena Vista Tuberculosis Sanatorium at the annual meeting of the Commission held in Winona last month.

The American College of Physicians will meet in Rochester, Minn., on April 4th, 5th, and 6th; and in Minneapolis on the 7th and 8th, following the Rochester sessions.

Dr. A. N. Nolan, formerly health officer of Great Falls, Montana, has been placed in charge of the medical division of the veterans' bureau, at Helena, for ex-service men.

Dr. James N. Metcalf, of Monticello, died last month at the age of 42. Dr. Metcalf graduated from the Medical School of the University of Minnesota with the class of '04.

Dr. H. F. Helmholz, Dr. R. M. Wilder, and Dr. C. Greene, of Rochester, were elected members of the American Physiological Society at the recent meeting in New Haven, Conn.

Dr. Winford H. Smith, Director of Johns Hopkins Hospital, spoke at a weekly meeting of the Hennepin County Medical Society on February 22d, on "Hospital Management."

Dr. A. G. Beyer, of the firm of Drs. Johnson & Beyer, of Red Wing, will soon leave for Vienna, where he will spend a year in eye, ear, nose, and throat work, which is now his specialty.

Dr. John H. Stokes, of the Mayo Clinic, recently addressed institutes in Memphis, Tennessee, and Louisville, Kentucky, as a special consultant of the United States Public Health Service.

Dr. F. T. Foard, of Great Falls, Mont., the Montana representative of the U. S. Public Health Service, will study and report on the physical development of the children of that state.

The fifth annual session of Minneapolis Clinic Week will be held on April 10th to the 13th, inclusive. The splendid things promised for this year's program are noticed editorially on another page.

Dr. W. E. Ground, of Superior, Wis., was the honor guest at the annual banquet of the Douglas County Medical Society on the occasion of his sixtieth birthday and the completion of thirty years of practice in that city.

Two notable legal contests are now in the courts of St. Paul. One is between the heirs of a physician; the other between the heirs of an empire builder, the late James J. Hill.

The St. Louis County Medical Society invited the representative of a well-known Minneapolis bond house to speak before it last month on bonds as an advisable investment for physicians. Other societies can surely profit by doing likewise.

The cordial and efficient co-operation between the Boards of Health and of Education of Minneapolis in promoting the health of the city's school children, is attracting attention and favorable comment from leading physicians of our state.

Dr. W. V. Lindsay, city health officer of Winona, instructed the school teachers of that city to send home every pupil with a cold, and he requested the proprietors of places of amusement and ministers to prevent people with colds from congregating.

Dr. Thomas Hartzell, of Minneapolis, a dentist and a graduate physician, president of the National Dental Association, delivered an address last month before the Watertown (S. D.) Dental Society and the physicians of that city. His subject was focal infection.

The Sanatorium Commission in charge of the Oak Park Tuberculosis Sanatorium re-elected Dr. O. F. Mellby, of Thief River Falls, president of the Commission last month. The Commission highly commended the work of the medical director, Dr. M. G. Milan, and reappointed him.

Dr. F. L. Bregel, of Minneapolis, has located in Milbank, S. D. Dr. Bregel is a graduate of the Medical School of the University of Minnesota. He was in charge of Red Cross hospitals in Constantinople and other places during the late war, and has been teaching Fellow in the School for some time.

Dr. W. E. List, Superintendent of the Minneapolis General Hospital, thinks the psychological moment has arrived to obtain a psychiatric ward in his hospital. This peculiar psychosis of the planets mentioned was due to an assault, an arrest, and a confession of guilt by a sadist in this city last week. The medical world do move.

The Duluth Veterans Bureau Clinic was organized in Duluth last month. Its purpose is to look after the interests of veterans of the war under the care of its members. Dr. F. H. Magney was appointed chairman, and the other members are the following: Drs. G. G. St. Clair, J. A. Winter, A. N. Collins, F. W. Spicer, and M. H. Tubbitts.

The course in Public Health Nursing will be offered in the Spring quarter commencing March 29, 1922, at the University of Minnesota. Candidates should present a high school diploma or its equivalent. Applications for admission may be addressed to Miss Marion L. Vannier, Acting Superintendent, School of Nursing, University Hospital, University of Minnesota.

Dr. J. A. Thabes, of Brainerd, has formed the Brainerd Clinic, composed of the following physicians: Dr. J. A. Thabes, surgery; Dr. G. I. Badeaux, general practice; Dr. G. G. Nordin, eye, ear, nose, and throat work; Dr. M. P. Gerber, pediatrics. Dr. Gerber has been associated with Dr. O. W. Rowe, of Duluth, in pediatric work, and has just moved to Duluth. They are all graduates of the Medical School of the University of Minnesota.

The Seventh District Medical Society of South Dakota, which meets at Sioux Falls, has published its monthly program for the current year. Many of the speakers are from outside the District and some from outside the State, and some are laymen (ministers, politicians, etc.). Dr. E. J. Huenekens and Dr. J. C. Litzenberg, of Minneapolis, appear on the program, the former for the meeting of May 9th, and the latter for the meeting of June 13th.

The Medical School of the University of Minnesota, the Minnesota State Board of Health, and the U. S. Public Health Service have united to give a short course of lectures, clinics, demonstrations, and conferences on venereal diseases and a like course on maternal and infant hygiene at the University on March 20th to 25th, inclusive. There will be no fee whatever for admission to any of the classes or lectures. The program can be obtained by addressing the Dean of the Medical School.

The North Dakota Anti-Tuberculosis Association held its thirteenth annual meeting at Bismarck last month, when officers were elected as follows: President, Dr. James Grassick, Grand Forks; vice-president, Dr. Fannie Dunn Quain, Bismarck; secretary, Miss Carrie Haugen, Bismarck. Dr. J. G. Lamont and Dr. H. E. French were re-elected members of the executive committee. The Association is doing a splendid work, and is a worthy model for other like organizations.

The third regular meeting of the Minnesota Branch of the Society for Experimental Biology and Medicine was held at the University of Minnesota on Wednesday evening, February 8. The scientific meeting was preceded by the usual dinner. The following papers were read: (1) Evidences of a Gel Structure in Gelatin Gels.—R. A. Gortner and W. F. Hoffman (by invitation). (2) The Regulation of Respiration.—F. H. Scott and C. C. Gault (by invitation). (3) Potassium Iodide Does Not Inhibit Experimental Actinomycosis.—A. T. Henrici and G. S. Reynolds (by invitation). (4) Factors which Control the Fat Content of Bacteria.—Leonard Larson (by invitation) and W. P. Larson.

The annual hospital reports that come to our office this year show a financial condition that is exceedingly gratifying. For instance, the report of the Western Minnesota Hospital, of Graceville, shows that 1,260 patients were admitted in 1921, including 138 obstetrical cases. The gross earnings were $29,789, and the cost of maintenance was $23,588. All bills were paid, and the Hospital had a balance of $7,893 in bank. The hospital began work in November, 1914, and the building and equipment cost about $20,000, but would cost $30,000 now. It has paid to the stockholders 65 per cent of their subscriptions. The average daily cost of maintenance per patient was $2.43. The annual report is gotten out in very attractive form.

A BACK NUMBER OF THE JOURNAL-LANCET WANTED

We very much need two or more copies of our issue of February 15, 1920; and we will thank any subscriber who will send us a copy of that date.

GRADUATE NURSE WANTS OFFICE POSITION

A graduate nurse wants a steady position, preferably in a doctor's office. Best of references. Address 216, care of this office.

GRADUATE NURSE WANTS INSTITUTIONAL WORK

A graduate nurse of experience desires work in an institution and would like to be near the Twin Cities. Will accept position in a clinic. Address 218, care of this office.

LOCUM TENENCY WANTED

A competent practitioner in an established partnership is available for locum tenency. Address 217, care of this office.

PHYSICIAN WANTED

In a Minnesota village of 450, with a splendid mixed German, Irish, Scandinavian, and American population. Nearest competition, 14, 14, 20, and 32 miles, respectively. Good consolidated school and four churches, fine new creamery; fine office and living rooms over the bank. Address 213, care of this office.

PRACTICE FOR SALE

A $10,000 practice in a town of 12,000 in Southern Minnesota with fine hospital. Can turn over industrial work that pays $150 a month and brings in more. Terms, $1,000 cash, covered by office equipment. Reason for selling, forming partnership elsewhere. Address 214, care of this office.

SCANDINAVIAN PHYSICIAN WANTED

A fine opening for a Scandinvain doctor in a Western Minnesota town of 1,800 with large territory largely Scandinavian. Only two doctors here at present, neither Scandinavian. Free office room in drug-store. For particulars address 215, care of this office.

IN SOUTH DAKOTA

In a German community of 1,200 population in South Dakota, complete modern dental equipment and practice; modern hospital and complete *x*-ray outfit of physician at purchaser's disposal. Chance of a lifetime. Address 212, care of this office.

OFFICE, FURNITURE, INSTRUMENTS, ETC., FOR SALE

The office furniture, instruments, books, drugs, etc., of the late Dr. A. J. Murdock, of Minneapolis, are for sale at low prices. Address or call 3161 Columbus Ave., Minneapolis, or telephone, call South 0483.

TECHNICIAN WANTS POSITION AT MODERATE SALARY

Can do urinary, blood, gastro-in-testinal and tissue work and Wassermanns. Speaks, English, Norwegian, and German fluently, with a reading knowledge of French. Best of references. Address 209 care of this office.

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A young woman wants a position as laboratory technician preferably in the Twin Cities, either with a group of physicians or in a commercial laboratory. Experience: clinical routine laboratory bactriological and basal metabolism work. Best of references. Address 210, care of this office.

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SURGICAL AND MECHANICAL TREATMENT OF TALIPES DUE TO ANTERIOR POLIOMYELITIS*

USUAL TYPES OF CASES AND RESULTS AS SHOWN BY MOVING PICTURES

By C. C. CHATTERTON, M. D.
ST. PAUL

In May, 1917, the author presented a paper upon the "Mechanical and Surgical Treatment of Anterior Poliomyelitis" before this society. At that time it was possible only to show photographs of end-results, giving no idea as to the amount of deformity in the beginning, nor could one, unless he were connected or familiar with the work, grasp the real amount of benefit derived by these patients as a result of rather simple operations followed by appropriate after-treatment.

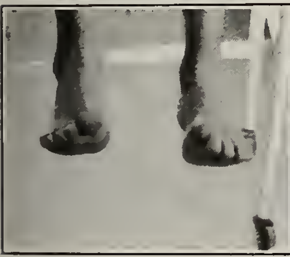


Fig. 1

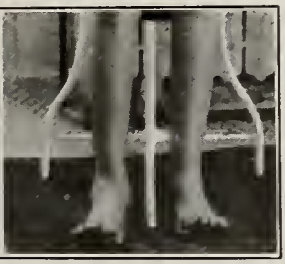
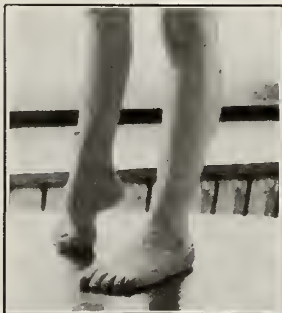


Fig. 2

Fig. 1. Cocked toe; beginning claw-foot. A suitable case for transference of the extensor of the great toe to the head of the first metatarsal bone.
Fig. 2. Same case. End-result.

The advantage of the moving pictures in showing deformities and methods of locomotion is all apparent. The film which you will see was begun in 1915 and completed in about a year, and

Fig. 3


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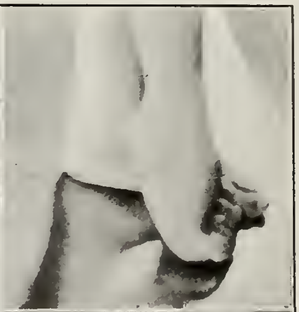

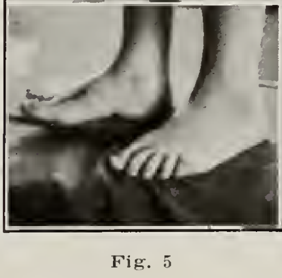
Fig. 5

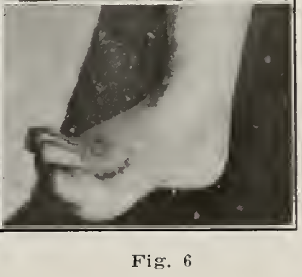
Fig. 6

Figs. 3 and 4. Extreme claw-foot. A suitable case for transference of all the toe tendons of the front of the foot to the heads of the metatarsal bones; lengthening plantar fascia and tendo Achillis.
Figs. 5 and 6. Same case. End-result.

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*Presented at the Thirty-fourth Annual Meeting of the North Dakota State Medical Association, Fargo, N. D., May 26 and 27, 1921.

was taken, not for the profession alone, but to be used to educate the laity, as well. Because of the expense and the number of deformities the views in several instances have been cut to the smallest possible space, and end-results are shown as the patient was discharged from the hospital, and not as they are at present, five years from the time of operation.

The surgical and final stage in the treatment of deformities due to anterior poliomyelitis are not reached until at least two or perhaps three years have elapsed from the time of onset, nor until after the patient has reaped the benefit given by mechanical apparatus, muscle training, massage, and extra warmth. A great number of cases may be cured by these procedures or at least greatly benefited, and through these measures we decide as to what type of surgical operation is to be finally contemplated.

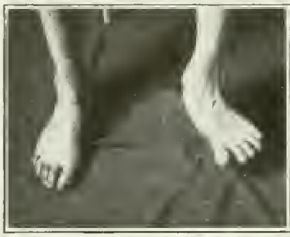
Fig. 7

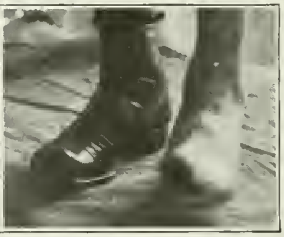
Fig. 8

Fig. 7. Paralyzed or weak tibialis anticus muscles; strong peronei. A suitable case for the transference of the peronei into the insertion of the tibialis anticus.
Fig. 8. End-result. Shows the foot inverted by the peronei muscles.

To review, briefly, the following are well-known and well-tried surgical procedures, alone or in combinations, that may be used in cases of paralytic talipes, correcting deformity and giving a stable and useful foot:

1. Operations upon bone.
2. Operations upon joints.
3. Operations upon tendons.
4. Use of foreign material.

Operations upon bone: Osteotomy, removal of wedge portions, and skeletal remodeling may be necessary in severe cases of deformity, but are rarely used. Astragalectomy is the universal operation for talipes calcaneous, and consists in removal of the astragalus and subluxation of the foot backward so the tibia and fibula rest over the scaphoid and cuboid bones. Again, it is used in the flail talipes valgus with good results as far as a useful foot is concerned. Some authors go so far as to use this operation in every kind of deformity of the foot, and claim results.

Operations upon joints: Arthrodesis alone is seldom used in our cases, but can be used to help stabilize the foot after tendon-transference or tenodesis in children over the age of seven years. The joints usually operated on are the astragalotibial astragaloscaphoid, calcaneo-astragaloid, and, after the long extensor of the great toe has been removed, an arthrodesis of the last interphalangeal joint.

Operations upon tendons: Simple tenotomy of the contracted tendons with application of apparatus or plaster dressings holding the foot in over-corrected position for a period of time often gives a very useful and well-balanced foot, especially in cases where very little attention has been paid to the deformity in the very early stage and the foot has assumed a bad position, muscle strength having returned in the chronic stage to give proper balance, but the contracted tendons still held the foot in bad position.

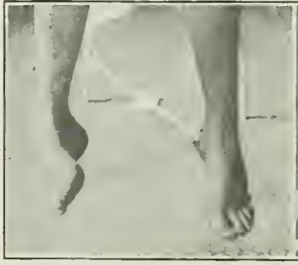
Fig. 9

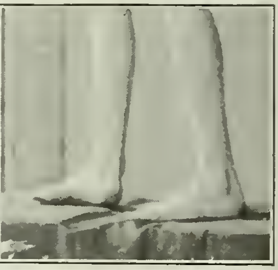
Fig. 10

Fig. 9. Paralysis of peronei muscles; strong tibialis anticus. A suitable case for transference of the tibialis anticus to the opposite side of the foot.
Fig. 10. Position of the foot in walking. Paralysis of the peronei muscles.

Tendon-transference operations: In selected cases this type of operation is very useful, but should be considered only after very careful study of the part in reference to the muscular strength and part to be taken by the transferred tendon. The operations done under this head seem quite numberless, but I have found four types to be quite satisfactory:

1. Transference of extensor proprius hallucis to the head of first metatarsal bone.
2. Transference of tibialis anticus to the opposite side of foot.
3. Transference of peronei to the opposite side of foot.
4. McKenzie-Forbes operation for claw-foot.

1. Transference of long extensor of great toe is usually used in mild claw-foot with equinus and contracted tendo Achillis and plantar fascia.

2. Transference of the tibialis anticus to opposite side of foot is used with paralysis of the peronei group and foot in equinovarus position.

3. The peronei group are transferred to the opposite side of the foot when there is paralysis of tibialis anticus and strong peronei pull foot in equinovalgus position.

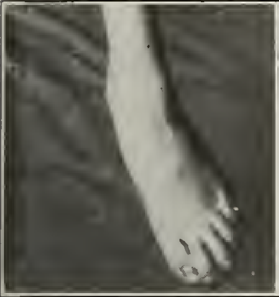

Fig. 11

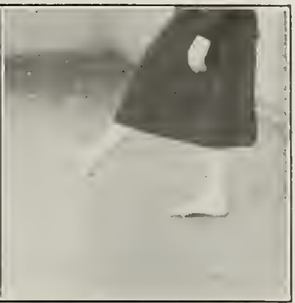

Fig. 12

Fig. 11. Flail dangle-foot. A suitable case for an ankylosing operation.
Fig. 12. End-result shows the position of the foot after arthrodesis at the ankle-joint.

4. McKenzie-Forbes operation used in extreme cases of claw-foot and all the tendon extensors of the toes are transferred to the heads of metatarsal bones after lengthening of plantar fascia and tendo Achillis. An interphalangeal arthrodesis is done also on the great toe to prevent toe deformity. These are the satisfactory operations of tendon-transference in the foot.

Tendodesis-tendon fixation operations: Tendodesis was first used by Hoffa. He converted tendons around the joint into ligaments by sewing them to bone and fascia above and below the joint, to increase its stability when flail-like, and to restore proper alignment and balance when distorted. Putti sewed the tendons into a hole bored into the bone; Galli buried the tendons under the periosteum. The limitations of tenodesis cover all flail deformities of the foot except perhaps the most severe. A part of a functionating weak muscle tendon may be sutured under the periosteum to prevent over-strain of the muscle and prevent deformity. Alone tenodesis in my experience is not always satisfactory because of the tendencies of the insertions to give way and deformity return, but it is of great value to help support the foot as an aid to arthrodesis, and is so used in flail conditions of the foot.

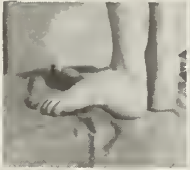

Fig. 13

Fig. 14

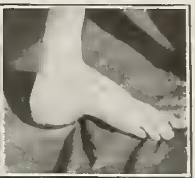

Fig. 15

Fig. 13. Talipes calcaneous. A suitable case for astragalectomy.
Fig. 14. End-result after astragalectomy.
Fig. 15. Marked talipes calcaneous. A suitable case for astragalectomy.

Foreign Material: (1.) Nails and bone pegs may be used to assist ankylosis in arthrodesis to advantage although it is seldom necessary; (2) Paraffin or bichloride silk is used for extension of transferred tendons or as a fixed ligament in flail conditions of the foot. The disadvantage of the silk as used for a ligament is that it does not grow and eventually causes deformity or fresurplanted the silk ligament, and we have the advantage of a live tendon.

FUNDAMENTALS OF THE PTOSIS QUESTION*

By R. C. Coffey, M. D., F. A. C. S.
PORTLAND, OREGON

To use a homely but practical definition, we may say that embryology is the science by which we are taught the process of construction of the animal organism. Anatomy teaches us the details of the constructed organism. Physiology teaches us the functions of the organism after it has been animated by the nerve and blood supply. Pathology, used in its broadest sense, may be defined as any deviation from the normal.

It is often quite puzzling, even to the physician, unless a great deal of study is given it, fully to understand the relation of the peritoneum to the various organs. This can be done only by careful study of the embryology, which I shall omit for want of time. I have often used the following homely illustration:

Let us suppose that we desire to line a room with cloth. That we expect the cloth to be loosely attached to the wall by an elastic network or rubber bands. This network would correspond to the loose connective tissues outside the peritoneum, which hold it to the firmer structures of the abdominal wall. Then let us suppose, as an afterthought, we decide to suspend certain articles into the room without bringing them directly within the cavity. We, therefore, take a string and let down one article from the ceiling. It pushes the cloth immediately in front of it, and the network behind, and the cloth from the sides closes in after the article. From the inside of the room the cloth is between the article and the free cavity of the room. Suppose, then, that we glue the cloth to this article on the outside. This part of the lining of the rooms will correspond to the peritoneal covering of the viscera within the abdominal cavity. The string suspending the article from the ceiling or sides would correspond to the blood-vessels, lymphatics, and nerves going to supply various organs of the abdominal cavity. The part of the cloth dropped down as a fold to include the string would correspond to the peritoneum of the mesenteries, which is in reality the only suspensory support in the abdomen. Then it will be seen that the abdominal organs are really extra-peritoneal, being let into the peritoneal cavity by infolding the peritoneum from without.

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This description corresponds exactly to the arrangement of the mesenteries and peritoneum of the quadruped. This has been modified in the human being by the fusion of certain peritoneal surfaces for the purpose of fixing certain organs in the evolution for assuming an erect posture. This seems to be a developmental process as man has risen to an erect animal.

In studying the abdominal cavity from the standpoint of comparative anatomy we find that in man the liver has fused with the diaphragm, while in the quadruped it is suspended by a mesentery the same as other organs. In man the duodenum is firmly fixed to the right abdominal wall, while in the quadruped it is freely movable. In man the ascending and descending colon and the two flexures are normally fixed to the posterior abdominal wall without the intervention of mesentery, while in quadrupeds the large intestine has a long mesentery and is therefore freely movable. In man the great omentum grows down over the transverse colon and adheres to it. This does not occur in the quadruped. In man the omental bursa is usually obliterated by adhesion of its layers together. Obliteration does not take place in the quadruped. In man the pancreas has been rotated behind the peritoneum and fixed to the abdominal wall. In quadrupeds the pancreas lies between the layers of the mesentery. In the monkey, which is a quadruped with a tendency to stand erect, the pancreas becomes adherent, and the duodenum is more firmly fixed than in the original quadruped.

A question which confronts us is, Why these differences between the animals walking on four legs and those walking erect?

I believe these prenatal fixations by adhesion or fusion in the erect animal are, without doubt, for the purpose of holding the organs in their places, thus preventing them from piling up in the bottom of the abdominal cavity by gravity.

I feel sure that if a dog were forced to walk upon his hind legs all the time without the normal peritoneal fusion noted in the human being his organs would pile up in the bottom of his abdominal cavity, and he would become a "neurasthenic," as ptosis patients have usually been called.

While the suspensory supports of the peritoneum are very important, in fact essential, in holding the abdominal organs into their proper position in order that they may functionate, this is not the only influence which makes it possible to hold the organs in their normal position. These supports are sufficient in the quadruped, but in man we must bring in other influences to bear.

The shape of the abdominal cavity is very much the same in all animals. In man the shape of the abdomen becomes a very important factor in maintaining the relative position of the organs. It must be remembered that the abdomen is not a straight oval, but that the abdominal cavity proper, independent of the pelvis, is in the shape of a Bartlett pear tilted backwards.

From plaster sections of the abdominal cavity, checked off in sections corresponding to one inch, it will be seen that, with the subject standing erect, if a plumb line were dropped from the diaphragm so that it passed through the abdominal cavity at the point where the appendix is attached to the posterior wall, much more than one-half of the space on that side of median line would be back of the plumb line, which we, for convenience of study, will call the perpendicular psoas line. If another plumb line were dropped so as to pass along the front surface of the kidney, this line would be three inches back of the perpendicular psoas line, and may be called perpendicular kidney line. Another line one and one-half inches further back would touch the back side of the kidney. The attachment of the hepatic and splenic flexures of the normal colon is external to the kidney and is almost even with its posterior surface. This attachment is four inches back of the perpendicular psoas line, and passes from the hepatic flexure forward to the cecum or appendix at a

51 degree angle. It will be noticed, by observing these lines, that fully two-thirds of the right lobe of the liver is back of the perpendicular psoas line, so that the really heavy organs are found not to drag with a direct pull at all. In fact, the kidney rests on a four-inch shelf, which is heavily padded with fat. It is held back by the normal retroperitoneal connective tissue plus the fused mesocolon with its two layers of peritoneum, connective tissue, blood-vessels, etc. Therefore, in a normal individual there is not the slightest tendency towards prolapse of the kidney.

The ascending colon lies on a shelf with a slope of 51°, and is held there by fusion with the parietal peritoneum, as mentioned before. It would not, therefore, hang as a dead weight even in the absence of intra-abdominal pressure. On the left side the splenic flexure is held at a higher level and further back than the right, or hepatic flexure, and has two extra supports in the form of the costocolic ligament and the gastrosplenic ligament, which is continued down to the colon. These organs are held on this shelf to a certain extent by the strength of the abdominal wall in front, much as if a vessel should be set on a shelf not quite wide enough to prevent it from falling off and should then have a strip nailed in front of it. The weight held by the strip would correspond to the part played by the anterior abdominal wall in holding up the abdominal organs. The abdominal wall, therefore, becomes the third element in holding the organs in position.

The fourth element of support connected with the abdominal organs is intravisceral and intra-abdominal pressure.

The peripheral abdominal wall is a flexible structure, composed chiefly of flexible and elastic muscle enclosed in a flexible but nonelastic aponeurosis. While the wall is flexible to a large degree, it is collapsible only in its front portion. The collapsible portion, or anterior abdominal wall, contrary to the ordinary belief, is but slightly elastic under an ordinarily acute strain, owing to the strong layers of aponeurosis surrounding the muscles. Except in chronic processes, such as the development of a tumor by cellular increase, a cyst or ascites, which has behind it the blood pressure of pregnancy, there is but little change in the capacity of the abdomen of an otherwise normal person. Extreme distention of the abdomen, apparently, may enlarge the abdominal cavity by pushing up the diaphragm at the expense of the chest capacity, but the sum total of the body cavity is not materially enlarged. By elevation of the ribs the girth of the upper portion of the abdomen may be increased, but the lower or middle part of the abdomen will be correspondingly diminished. Elevation of the ribs plus extreme distention of the abdomen makes tense and collapsible part of the abdominal wall, and increases the girth of the abdomen at all points; but the only actual increase of abdominal capacity is made at the expense of chest capacity by elevation of the diaphragm. The abdominal cavity is air-tight, but is by no means a vacuum.

There is always a variable and indefinite amount of pressure in the peritoneal cavity, known as intra-abdominal pressure. This pressure may be greater, but is usually less, than the atmospheric pressure.

The degree of intra-abdominal pressure depends on the variable contents of the abdominal cavity. The variable contents are (1) extraperitoneal and mesenteric fat; (2) the visceral contents. The visceral contents are liquids and gases and may be intermittently expelled at any time, thus acting as an immediate safety valve for the establishment of an equilibrium and a normal intra-abdominal pressure. The extraperitoneal and mesenteric fat is included within the inelastic abdominal wall, and lessens the abdominal cavity in exact proportion to the amount of fat thus included.

The law of osmosis, by which fluids of different densities pass through an animal membrane and establish an equilibrium, has its counterpart in the relation of intra-abdominal and intravisceral pressure.

I made an interesting experiment as follows: An ordinary suction apparatus, connected with a water-faucet by a rubber tube, which, in turn, is connected with an aspirating bottle by a T connection, tends to create a vacuum in the bottle, provided the distal end of the horizontal portion of the T is closed. If it is not closed the air is drawn directly through the tube from the outside, and the air in the bottle remains in a state of equilibrium. If a very thin rubber bag is suspended in the bottle by another hollow tube, passing through the cork and connecting the bag with the outside atmosphere, the air within the bag and within the bottle remains in a state of equilibrium so long as the distal end of the T connection remains open. If this distal portion of the T connection is closed by forceps, suction at once begins to reduce the pressure within the jar and thus tends to make a vacuum. Immediately the atmosphere rushes into the enclosed, suspended rubber bag and distends it in proportion to the degree of vacuum thus produced in the jar.

Thus a law parallel to the law of osmosis can be formulated: If a thin elastic container with an outside connection for a source of supply of fluids or gasses is enclosed within an inelastic container, there is a constant tendency to establish an equilibrium of pressure. Thus if a portion of the contents, consisting of gas or of other substance, is withdrawn from the outside, inelastic container, the pressure on the outer surface of the elastic container is reduced, and a corresponding inflow of contents is brought into the elastic container from the outside, for the purpose of establishing an equilibrium.

In the case of the abdomen, the abdominal wall is the outside inelastic container, and the hollow viscera represent the inside elastic container, with the outside source of supply through the mouth. Within and partially filling the abdominal cavity, is a variable quantity of fat. Intra-abdominal fat apparently is deposited under much lower pressure than are the cells of a tumor, pregnant uterus, or ascitic fluid. The deposition of fat, therefore, within the abdominal cavity does not materially stretch the abdominal wall in a normal person. However, it is sufficient to increase the size of an already existing umbilical or post-operative ventral hernia. If a large umbilical or post-operative ventral hernia exists for a long time in a fat patient, intra-abdominal fat is deposited in proportion to the contents of the hernial sac, making it difficult and at times impossible to replace the hernial contents without removing some of the abdominal contents, such as the great omentum.

A patient who has been moderately fat for some reason loses flesh; and the fat in the abdomen is correspondingly absorbed. The intra-abdominal pressure is lowered, and there is a tendency to a gradual, atonic dilatation of the hollow viscera in establishing an equilibrium. Digestion is disturbed, bowel action becomes torpid, and all of the secretions are below par, the stomach and bowels filled with gas. The patient often develops into that low state of health ordinarily referred to as "asthenic" and, in extreme cases, has even been referred to as "neurasthenic." If this poor state of health is permitted to go on for months or years, the abdominal muscles become weak and flabby and give way under the malnutrition and gas-distention, as well as the weight of the lowered organs, until finally the entire shape of the abdomen is changed.

The typical patient described by Goldthwaite, Smith, and others, presents a very characteristic picture. The rational theory of the steps in the production of this picture seems to be about as follows:

First, there is a deficiency of fusion of the normally fixed parts of the intestinal canal. As soon as the child reaches maturity these organs gradually tend to descend. The cecum, transverse colon, intestines, and at times the kidneys, gradually pass over the psoas muscle into the pelvic region. This leaves a vacant space in the upper part of the abdomen. The ribs, both because of this vacant space and because the organs are tugging on the diaphragm and thoracic fascia, are drawn slantingly downward until the typical corset-shaped chest is produced. The upper part of the abdomen becomes permanently narrowed. The ribs become fixed in this position. The lower abdomen becomes permanently dilated. The stomach and other organs, being below the waist line, have piled up. Fat has diminished with a corresponding lowering of the intra-abdominal pressure. The organs become permanently dilated in the process of establishing an equilibrium, and the patient presents a typical pot-bellied appearance, with the lumbar and dorsal vertebræ straight, up to the upper portion of the dorsal region, making a definite stoop in a ptosis patient at this point. This, according to Goldthwaite, is due to traction on the diaphragm and thoracic fascia. This dragging on the chest cramps the heart and lungs and makes distress in the chest. As the kidneys and other heavy abdominal organs slide off the psoas shelf, the tendency is for the lower part of the body to get in under the load, producing much the same position of the body as one assumes in carrying a heavy load in front of the abdomen. Therefore, we have termed this the "front carrying position."

The stomach, cecum, and other hollow organs dilate, due to (1) disturbance of relation of the movable portion of the alimentary tract to the fixed portions; (2) to reduction of intra-abdominal pressure by the absorption of fat. This brings about dilatation of the stomach and intestines, and causes a thinning out of these organs by their constantly being filled with gas. If such a stomach is examined by the Röntgen ray the peristaltic wave is found diminished or in some instances almost absent.

It is very interesting to watch such a patient after fattening by forced feeding. The stomach which is down in the bottom of the abdomen and is dilated and without peristaltic waves, will often rise from the bottom to a point above the umbilicus, diminish its lumen to less than one-half and develop normal peristaltic waves. Lane, particularly, has called attention to the formation of what he calls acquired bands and membranes, and he accounts for them on the ground that the upright position and the necessity for holding up the organs create a growth of membranes and bands which are attempting to hold the abnormally movable colon in position. These bands, as Lane has shown, frequently cause severe pain; so that pain, along with constipation and intestinal stasis, is, according to Lane, one of the frequent occurrences.

It has been the custom of many able physicians to dismiss the ptosis question by saying it is a general neurasthenic process in which we find the stomach, liver, kidneys, and all abdominal organs down. As a matter of fact, that is not the case, and it is only in a relatively small number of the most troublesome cases of ptosis that both the kidneys are down with the other organs.

Longyear has given us probably the best treatise on floating kidney. He has called attention to what he has termed the nephrocolic ligament, which attaches the kidney to the colon. He has called attention to the fact that it is the colon which drags the kidney out of position. This would explain why we have a right floating kidney much more frequently than the left. The right colon and hepatic flexure is much more likely to be movable and out of position than the left colon and splenic flexure, partially because the splenic flexure is held by the splenocolic ligament and costocolic ligament, in addition to its normal fusion to the parietal peritoneum. The most extreme forms of ptosis we have noted are not accompanied by floating kidney. It is rather uncommon to have floating kidney in a case in which the ascending colon and hepatic flexure have a long mesentery and are not attached at all. This adds much weight to Longyear's contention that the kidney is pulled out of position by the hanging colon. Where the ascending colon and descending colon have fused properly with the lateral parietal peritoneum, such a thing as a floating kidney cannot exist, no matter how thin or how wasted the patient becomes. It seems that the floating kidney exists particularly when the colon has moved over and become attached to the front surface of the kidney instead of going on across to the lateral parietal peritoneum. It there adheres to the parietal peritoneum in front of the kidney, but the peritoneum of the ascending colon and cecum do not attach to the parietal peritoneum. So we have, in cases of potential floating kidney, the hepatic flexure of the colon attached to the front surface of the kidney with a mobile cecum and ascending colon.

The relation of right-sided ptosis to the diagnosis of right-sided pathology is one of the most interesting phases of abdominal pathology. If we take hospital reports of fifteen or twenty years ago we find that there were about four cases of chronic appendicitis in the records to one of acute appendicitis. This is changing. One of the most instructive articles written on this subject was that of Chas. L. Gibson, in the *American Journal of Medical Sciences, May, 1920.*

In his service at the New York Hospital he reported 555 cases of chronic appendicitis from January 1, 1913, to July 1, 1919, six and one-half years. During the same time he operated on 820 patients for acute appendicitis, over 30 per cent more acute than chronic appendicitis. Besides that a considerable percentage of so-called chronic appendicitis cases showed no pathology.

In a considerable percentage of my surgery in the past I have removed what appeared to be normal appendices, at the request of the patients. No symptoms had ever been noted by the patients. Pathologists will report about 50 per cent of these diseased in some degree. This is in about the same proportion that we find definitely diseased appendices in what has been diagnosed chronic appendicitis. My associate, Dr. Charles E. Sears, several years ago, went over several hundred of our records and found that of the patients presenting themselves for abdominal symptoms, who had appendices removed elsewhere for chronic appendicitis, 70 per cent had not been relieved in the least by the operation. In other words, appendicitis was not the correct diagnosis. We have operated on many of these cases for chronic appendicitis in which we found at operation no evidence of disease of the appendix, in which we have found pericolic bands or adhesion of the appendix to the posterior parietal peritoneum, causing the appendix to be the ligament and chief support of the ascending colon and cecum. In the majority of these cases in which the pericolic bands exist the patient will not be relieved by removal of the appendix for the reason that it is not the diseased organ. In such cases, usually the band or membrane will be found to be supporting the colon at some given point, while the rest of the colon is movable. In other words, the acquired band or membrane, as described by Lane, has attempted to hold up the colon and correct the malposition.

In discussing the pericolic membranes in these ptosis patients, M. L. Harris has stated that the development of such membranes takes place in persons between twenty and thirty-five years of age. This corresponds exactly to my own experience, in which numbers of these patients have been operated upon for appendicitis about the age of twenty or twenty-five, when it was found that the appendix was not diseased, but that a definite active edematous membrane was developing over the ascending colon. I have noted that this membrane, both in its stage of development and in later stages, which Jackson and Lane had described, runs diagonally from the right lateral parietal peritoneum across the ascending colon, then extending around it to its mesentery. It is interesting to observe that this membrane apparently develops only in cases of mobile cecum, in which the cecum occupies the pelvis. The membrane seems to develop exactly at the point where the intestine crosses the psoas muscle, and, therefore, one explanation for the formation of this membrane might easily be the pressure of the abdominal wall holding the intestines between it and the psoas muscle. As we have shown in former pictures, the two are very close at this point.

It is the habit of many very good surgeons today to make a diagnosis of gall-bladder disease without gall-stones, saying that there may be no gall-stones and there may be no visible evidence of septic infection, but it is a gall-bladder case. At most of the clinics of the country we find such gall-bladders being exposed. Occasionally they are drained. Many are removed. I am confident that many perfectly healthy gall-bladders are being drained or removed when they are by no means at fault. In such a case it will usually be found that an acquired band runs along beside the gall-bladder and from its tip to the omentum and colon. In other words, the gall-bladder is supporting the colon and causing the pain in the gall-bladder. The removal of the gall-bladder will in many instances relieve the traction and relieve the pain. However, if the gall-bladder is not diseased and the pain and symptoms are due simply to traction on it by the colon through an acquired band or membrane, it seems very poor surgery to remove or drain the gall-bladder, for in our experience such cases are even better relieved by simply shortening up the supports of the ascending colon and attaching the omentum of the transverse colon to the abdominal wall.

Many cases of so-called duodenal ulcer, in the past, have been operated upon without the presence of ulcer. I have seen this done in some of the very best clinics of the country. Patients were not benefited by gastro-enterostomy, but rather were made worse. After awhile bad results caused the operators to desist from such operations. Then it was found that bands and membranes had grown across the duodenum at a point corresponding to the pain and to the obstruction. Some began to remove these bands and membranes. In a few instances this gave relief, but generally they came back. If such a case is examined carefully it will be found that the membrane crosses the first or second portion of the duodenum, and grows down into the gastrocolic omentum, forming a strong band or membrane which seems to be the chief support of a perfectly movable colon. The interesting point in such cases is that the removal of these bands usually is not followed by success. The drainage of the gall-bladder or gastro-enterostomy, which have been done in some instances, is very bad surgery.

In a large percentage of the appendicitis cases which were operated on for so-called chronic appendicitis years ago, the patients did not have appendicitis and were not relieved by the operation. We are of the opinion that a very large percentage of such cases will be relieved if proper and rational surgical treatment is administered.

TREATMENT

1. *Prophylactic.*—Every child on reaching puberty on showing symptoms of the frail child, as described above by Richard Smith and even more clearly by Goldthwaite, should be placed in the very best of health; should be fed the most nutritious and fattening diet; should be taught exercise and postures for making a perfect frame, as is taught by Goldthwaite; and should be taught in every possible way that would be conducive to health and structural perfection. It is probable that a great many so-called physical defectives or potential ptosis patients can, at this stage, be so directed as to make fairly healthy individuals all through life.

2. *Medical.*—In that type of young adults, usually females, who develop definite right-sided pain located about the neighborhood of the cecum and colon and who ordinarily had a diagnosis of appendicits incorrectly made upon them, the case is usually surgical, although the appendix may not be diseased. The colon is movable, due to lack of fusion of its peritoneum with the parietal peritoneum, and often bands or membranes may be seen in a state of formation. The surgical treatment is appendectomy, shortening the mesentery by a purse string, which includes the firm lateral parietal peritoneum in its grasp. These sutures begin in the neighborhood of the meso-appendix and should hold the cecum above the psoas muscle. They are placed from below upwards until near the point of the normal fixation of the hepatic flexure. The mesentery is sewed to the lateral parietal peritoneum. Gradually the mesentery is brought forward with a graceful curve on the anterior abdominal wall, where the mesentery is fastened with sutures to the parietal peritoneum. When the beginning of the omentum is reached the sutures are passed through the omentum just above the colon and made to pick it up also below the colon. This omentocolopexy is made to extend over to the midline or a little to the left. This operation we have termed *right-sided indirect colopexy and omentocolopexy*. But it must be distinctly understood that the peritoneal coat of the colon proper is not penetrated by the sutures. The sutures are confined to the mesenteric tissues and parietal peritoneum.

This operation is also the operation we perform where the diagnosis of cholecystitis is ordinarily made and where no gall-stones or other evidence of disease of the gall-bladder show at operation; also in those cases where a membrane or band has grown across the duodenum and formed a support for the transverse colon, giving symptoms closely resembling duodenal ulcer or pyloric spasm. All these conditions are relieved by this supporting operation more successfully than by simple removal of the various organs affected or the removal of the membranes.

In those cases of midline ptosis in which the duodenum and hepatic and splenic flexures have been normally fixed, but in which the middle of the stomach and transverse colon have prolapsed, producing obstructive symptoms of either the stomach or colon, the most successful treatment is surgical, although a very large percentage of them may be greatly relieved and some made perfectly healthy by medical measures, the principal feature of which is forced feeding, which increases the intra-abdominal pressure and shortens the mesenteries.

For those cases, however, which fattening does not relieve, or in which there are definite evidences of adhesions of the omentum to a point lower down in the abdomen, by far the best method of treatment is to do what we have termed the Hammock Operation, and to this we have added the suggestion of Lewis S. Pilcher, who in some instances passes the suture through the gastrocolic omentum and through the transverse mesocolon and fastens this suture to the parietal peritoneum. In quite a percentage of our cases we use this Pilcher suggestion and have also taken one bite with the suture below the transverse colon, thereby making sure that the colon is held in place. We have rarely known this operation to produce uncomfortable symptoms. In properly selected cases the results are most brilliant.

The type of case, however, which taxes the ingenuity of the physician and surgeon is the one in which the patient has gradually degenerated to the misshapen invalid so clearly described by Goldthwaite. In these individuals the treatment consists of exercise, orthopedic adjustments and appliances, forced feeding, and in certain cases surgery. The shape of the abdomen in these cases must always be kept in mind. Most of the organs have all left the upper abdomen and are chiefly below the psoas muscle, giving the patient somewhat the appearance of pregnancy. The back is straight and leans backward nearly to the upper end of the dorsal region, and the patient altogether presents a very characteristic pose. The prognosis, as far as restoring this patient to a perfectly normal individual, is not very good, although great improvement can be made. But the habit, both of body and deportment, has been fixed to such an extent that they rarely become normal individuals. The most successful cases I have ever seen are those in which we have done a radical operation. Namely, we anchored both kidneys and sutured the omentum and mesentery of the transverse colon entirely across the abdomen, making a complete partition in the abdomen, expanding the upper abdomen by plastic operation and contracting the lower abdomen by plastic operation, which we term the autoplastic bandage. We have had six of these cases done some years ago, and the patients have all remained fairly comfortable. I think there are occasional cases in which this very radical operation is justifiable. It is too late at this time, however, to hope to correct the misshapen body, but the rotundity can be built out by forced feeding, the intra-abdominal pressure improved, and the patient greatly benefited.

This leaves us the question of mobile cecum of Wilms, which is a part of the congenital ptosis question. It becomes so extreme at times as to involve an entirely different problem. I have seen a cecum of the extremely mobile variety develop to be much larger than the stomach of the patient. I have seen, in one instance, a patient in whom torsion of the cecum and ileum had taken place, producing gangrene of the cecum, ascending colon, and the last six inches of the ileum. If this dilatation is very extreme and the colon has occupied the pelvis there seems to be nothing short of plication of the cecum as a preliminary to the first type of ptosis operation described. This is done by bringing the longitudinal bands together and picking up bites of the intervening peritoneum with a continuous double chromic-catgut suture. This suture is then supplemented by small chromic-catgut interrupted sutures which pick up each loop of catgut as it crosses between the two bands, along with the peritoneum of the colon on either side of the continuous line of the sutures.

There is a class of patients who are known as pyschasthenics, from whom the surgeon must beg to be delivered. It is this type of case that the internist or gastro-enterologist tries to deliver to him, thereby relieving himself of a great burden. Ptosis in these cases may not be the marked symptom. The patient has ideas fixed on her ailments to the exclusion of all other subjects. She is of the type in whom a scar of operation becomes a part of her state of health, likewise any other happening. This type of patient is rarely relieved either medically or surgically, and the surgeon who permits himself to be inveigled into doing operations in these cases must suffer the odium of having his surgical results very successfully attacked.

Concerning the operations which deal with the lumen of the bowel for cases of ptosis; I must simply say "don't." Nearly all who have attempted to follow Lane's work in doing colectomies, or short-circuiting operations of any kind have come to grief and have suffered loss of prestige because of the fact that their patients are rarely permanently benefited and many of them made decidedly worse. Of course, there are those occasional cases in which the obstruction and pathology have become so great that this rule must be broken, but for all practical purposes the word "don't" answers the purpose and we must leave the exceptions to the good judgment of the operator.

RECAPITULATIONS OF FUNDAMENTALS

The ptosis question must be studied from the anatomical and physical standpoint. There are four anatomical considerations:

1. All the parts of the gastro-intestinal system are suspended by peritoneal supports in the form of mesenteries or omenta. In quadrupeds these supports are definite, free mesenteries.

Provision has been made for the erect position of man's abdominal cavity by fixing certain heavy organs by peritoneal fusions to other peritoneal surfaces.

In a considerable portion of the human family these evolutionary peritoneal fusions have not taken place. Individuals with this defect are potential ptotics.

Nature in attempting to remedy these defects after birth sometimes creates painful and distorting bands, very graphically described by Lane and Jackson.

2. The abdominal cavity having the shape of a pear and being tilted backwards in the erect position, provides for a definite shelf at the crossing of the psoas muscles, on which most of the heavy organs rest, provided they are held back by normal prenatal fusions or fixations. In the absence of these peritoneal fusions compensatory postural changes tend to obliterate the shelves and thereby alter the entire body-formation.

3. The strong muscular and fascial abdominal wall tends to further hold the heavy abdominal organs on the shelf. Overdistention or any other cause which weakens or stretches the abdominal wall in potentially ptotic individuals, is very important and must be taken into consideration in the treatment.

4. The walls enclosing the abdominal cavity are strong and practically inelastic. There is constant intra-abdominal pressure, which goes far toward holding the organs in normal position, even in potential ptotics.

This pressure is regulated by intra-abdominal and mesenteric fat and by the liquid and gaseous contents of the gastro-intestinal tract. Reduction of intra-abdominal fat tends to reduce intra-abdominal pressure. Nature in attempting to establish an equilibrium of pressure tends to produce gas and to conserve fluids in the gastrointestinal tract and thereby produce dilatation and gradual atrophy of the muscle walls. These factors must be taken seriously into consideration in connection with treatment as it is by relative intravisceral and intra-abdominal pressure.

TREATMENT

1. Prophylactic and orthopedic, which consists in teaching children along the lines of general health and of postural methods; also training and changing the body-formation of young adults by exercise, apparatus, etc.

2. Medical treatment, (a) fattening by forced feeding in bed, (b) bowel regulation, (c) postural exercise as recommended by Goldthwaite, Franklin Martin, and others, (d) instructions as to necessity of continuing all these forms of treatment for many months or even years.

The great majority of ptosis patients are made quite comfortable by these measures and large numbers are definitely cured.

3. Surgical. (A) All young adults who present definitely localized painful abdominal conditions and whose cases have usually been erroniously diagnosed as one of the recognized surgical conditions such as appendicitis, gall-bladder disease, or gastroduodenal disease, are best treated by surgical measures which consist of taking the strain off the painful points by shortening the normal mesenteries and fastening them to the peritoneum or by suturing the omentum to the abdominal wall.

(B) Cases of midline ptosis with definite indications of pyloric obstruction or severe constipation not relieved by the foregoing medical measures, should be operated on, the operation consisting of suture of the great omentum to the abdominal wall, sometimes including the gastrocolic omentum and the transverse mesocolon in the sutures (Hammock operation).

(C) A few extreme cases of general ptosis who are not benefited by medical or orthopedic measures should be treated surgically. In such cases the surgery must be very extensive if done at all; a complete Hammock operation, entirely partitioning the abdominal cavity; both kidneys anchored; the upper abdomen expanded by plastic operation; and occasionally the lower abdomen contracted by making an autoplastic bandage of the aponeurosis. This is then supplemented by forced feeding. All patients operated on in this way have made surprising recoveries. The surgeon should very carefully scrutinize ptosis cases referred to him by the internist, in order to avoid an operation on a psycho-asthenic patient.

An operation which opens the gastro-intestinal canal is rarely called for in connection with the treatment of ptosis.

TETANUS AND ITS TREATMENT*

By Ernest V. Smith, M. D., F. A. C. S.

FOND DU LAC, WISCONSIN

The late Sir William Osler[1] defined tetanus as follows:

"An infectious malady characterized by tonic spasms of the muscles with marked exacerbations. The virus is produced by a bacillus which occurs in earth, in putrefying fluids and manure, and is a normal inhabitant of the intestines of many animals."

"After an injury the disease begins usually within ten days. In four-fifths of the cases the symptoms occur before the fifteenth day. The patient complains at first of slight stiffness in the neck, or a feeling of tightness in the jaws, or difficulty in mastication. Gradually a tonic spasm of the muscles of these parts produces the condition of trismus, or lock-jaw. The eyebrows may be raised and the angles of the mouth drawn out, causing the so-called sardonic grin. Gradually the process extends and involves the muscles of the body. Those of the back are most affected, so that during the spasm the patient may rest on the head and heels. The entire trunk and limbs may be perfectly rigid. In every violent attack the thorax is compressed, the respiration is rapid, the perspiration is profuse, and spasm of the glottis may occur causing asphyxia. The convulsions last for a variable period, but even in the intervals the relaxation is not complete. The slightest irritation may cause a spasm. The convulsions are associated with agonizing pain, and the patient may be held as in a vice, unable to utter a word. The temperature is usually low, but may be very high."

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In the sixth edition of Osler's[6] Practice of Medicine,[12] published in 1906, the following paragraph gives his views regarding the prognosis of tetanus at that time:

"Two of the Hippocratic aphorisms express tersely the general prognosis at the present date." "The spasm supervening on a wound is fatal" and "such persons as are seized with tetanus die within four days, or if they pass these they recover." "The mortality in the traumatic cases is not less than eighty per cent."

During the past fourteen years, or since this prognosis was given by Osler, the more general use of tetanus antitoxin has come into vogue as a curative agent. For several reasons the true value of the antitoxin has not been fully appreciated by the medical profession: First, because we failed to give it in sufficient dosage it was condemned, and second, because it has always been considered such a fatal disease we have been taught to treat the symptoms of the disease and not the cause. That there remains a doubt in the minds of many as to the curative value of tetanus antitoxin is evidenced by the great number of articles which only recently have been published on the treatment of tetanus with magnesium sulphate. Many are still willing to combat the symptoms of the disease and not the cause. Treat the cause of a disease, and the symptoms will take care of themselves.

As a basis for this paper a very exhaustive review of the literature was made covering almost everything that has been published during the past ten years. This includes an enormous amount of material published during the late war.

A startling report has been received from the Surgeon General's[3] office giving the number of cases of tetanus among the wounded in the American Army. Out of thirty-six cases there were thirty-four deaths. Certainly a very high mortality rate (94.4 per cent).

In an article on "Tetanus" in the British Armies in France between November, 1916, and December, 1917, Cummins and Gibson[4] report three hundred and seventy-six cases with a mortality of 67 per cent.

Under the "treatment of tetanus," Dean[5] reports twenty-five cases with only four deaths. In this article the author makes the very significant statement that the "essential principle of serum treatment is to give a very large dose of antitoxin at the earliest possible moment. This object can be most easily attained by the intravenous route."

Experimentally, Golla[6] has shown beyond a doubt that "the intravenous and intrathecal routes of administration of tetanus antitoxin are vastly superior to the subcutaneous and intramuscular routes. Such superiority is attributed to the slow absorption when injected subcutaneously."

From a review of the literature of the past ten years it is determined that the intravenous method of administration of tetanus antitoxin is rapidly becoming the method of choice.

An article by Park and Nicoll[7] published in the *Jour. of the A. M. A.*, in 1914, outlines the treatment as follows: "In every case strongly suspected of being tetanus from three to five thousand units of tetanus antitoxin should be given at the first possible moment intraspinally. It would seem advisable to give at the same time a dose of ten or fifteen thousand units of antitoxin in the vein. A similar dose given subcutaneously three or four days later will insure a continuance of the highly antitoxic condition of the blood during the next five days." They do not believe that there is any advantage in giving larger amounts of antitoxin than those mentioned. The proper and thorough surgical treatment of the wound, and the use of sedatives and stimulants are very essential factors in the treatment of the disease. When for various reasons tetanus antitoxin cannot be given in the spinal canal, it is far better to inject it at the earliest possible moment intravenously than to lose time in seeking skilled advice in order to give it intraspinally, which, however, should be done later. If the physician is unable to give it intravenously he should give it subcutaneously. This, though far inferior than even the intravenous way, is still of some value in early and slowly developing cases.

The question arises, What is a large dose of antitoxin in tetanus, or what dose should be used to cure a moderately severe case.

Strock[8], in 1907, after relating an experience with small doses in five cases and a mortality of 100 per cent reported five cases treated with very large doses and a mortality of twenty per cent.

In 1910 Caffrey,[9] of Milwaukee, reported one case in which 112,500 units were given with recovery.

Young[10] reported three apparently hopeless cases in which large doses were used, and all followed by recovery. One patient, a boy, received 150,000 units, and another, a man, 220,000 units.

Bogert[11] reports giving 587,000 units to a girl fourteen years of age. "The dose given is apparently a record one and shows if not the value of large doses, at least a tolerance to such dosage since the patient recovered."

"Anaphylactic reactions from secondary inoculations of tetanus serums are of very rare occurrence according to Taylor[12] and may be obviated by the employment of the desensitizing dose. This consists in subcutaneous injection of from 0.5 to 1 c.c. of the serum, followed, after three or four hours, by the remainder. Serum sickness may occur in spite of this precaution at any time between three and eight days after injection. It is characterized by edema, local or general, urticaria, joint pains, and occasionally fever, vomiting, and general malaise. The duration is usually from one to five days." The usual prophylactic dose of 1,500 units is not sufficient to prevent tetanus in all cases. Its administration during the great war, however, undoubtedly reduced the number of cases and saved many lives. The cases which did develop following its prophylactic use were frequently of the chronic or delayed type, coming on from one to three months after injury. The percentage of recovery in such cases was much higher than in the acute type which had an incubation period of ten days or less.

I wish to report three cases of tetanus that have come under the care of our clinic in St. Agnes Hospital, Fond du Lac, Wisconsin.

The first case is of the severe type and the second and third cases of the milder type. All were plainly cases of tetanus, and by the administration of large doses of serum intravenously and intraspinally none developed convulsions and all made complete recoveries.

Case 1.—(Hospital case No. 21505.) A school boy, aged 8, entered the hospital November 15, 1918, complaining of rigidity of the muscles of the jaw, neck, back, and extremities. He was unable to separate his teeth more than a quarter of an inch, and had great difficulty in swallowing. His head was drawn back, and his face had a peculiar set or fixed expression. His back was bowed so that when lying in bed he rested on his head and heels. Up to the time of entering the hospital he had had no convulsions. Two days before he had noticed stiffness of the jaw and rigidity of the muscles of the neck. One month before admission he had been vaccinated, and examination showed an open inflamed discharging ulcer, the size of a twenty-five cent piece on the left arm. His chin had been slightly skinned two weeks before admission by an overall buckle. This wound was entirely healed.

The urine on the day of admission showed a trace of albumin, the temperature was 100°, pulse, 108; and the respiration, 28. The discharging septic wound from the vaccination on the left arm was thoroughly cleansed and irrigated frequently with Dakin's solution. A wet dressing of Dakin's solution was applied, and changed every three hours.

Under general anesthesia a spinal puncture was done, and about 10 c. c. of fluid withdrawn and 5,000 units of tetanus antitoxin given intraspinally. At the same time 5,000 units were given intravenously. During the first day the patient was very restless and perspired very profusely. The second day after admission 5,000 units of antitoxin were given intravenously and 5,000 subcutaneously. On the third day 10,000 units were given intraspinally. On the fourth day 10,000 units were given intravenously, and on this day a scarlet rash somewhat similar to the rash of scarlet fever was noticed over his entire body.

On the fifth day 10,000 units of antitoxin were given and 5,000 units each, on the 6th, 7th, and 8th days. The rigidity became less marked by the sixth day, and improvement was very rapid. The patient was discharged, cured, on the fourteenth day after admission. In all, 65,000 units of tetanus antitoxin were given. Spiritus frumenti was given as a stimulant. Morphine was given when needed as a sedative.

Six months later the patient was examined and found to be in perfect health exhibiting no after effects.

Case 2.—(Hospital case No. 21513.) A young man aged 18, entered the hospital November 16, 1918. This patient was able to walk, but had marked rigidity of the muscles of the neck and back and slight opisthotonos.

Eight days before admission he ran a nail into his left foot; the wound was completely healed and not tender.

Tetanus antitoxin was given as follows

First day or day of admission 15,000 units intravenously; second day, 15,000 units intravenously; third and fourth days 20,00 units each day. The fifth day 5,000 units were given, and it was noticed that the patient was beginning to relax. On the seventh day the scarlet rash appeared. Improvement was rapid. The patient was up on the twelfth day and was dismissed from the hospital on the twenty-first day in good condition. In all 75,000 units of tetanus antitoxin were given by the intravenous route.

Case 3.—(Hospital case No. 22285.) Young man, aged 15. Previous to admission he injured both knees while exercising in the gymnasium. There had been a large abrasion on the left knee and a smaller one on the right which were completely healed at the time of entering the hospital. About two weeks after the injury he noticed that he had difficulty in opening his jaws. Later his neck became stiff, and he complained that his eyes were blurry. Three days after the onset of the symptoms his legs became stiff. The patient was admitted on a stretcher, his temperature was 99°; pulse, 102; and respiration, 26. White blood count was 14,000, and urine negative. Trismus and rigidity of muscles of neck, trunk, and extremities were very marked.

Tetanus antitoxin was given intravenously as follows: first day 20,000 units. (The day before admission the patient had had 1,500 units subcutaneously.) On the second, third, and fourth days 10,000 units were given, each day intravenously, or 51,500 units in all. Rash occurred on the fifth day and relaxation became apparent about the same time. This patient had complained of inability to read print and of a blurring of vision, which also improved with the relaxation. The patient was discharged, cured, after seven days. A follow-up letter, six months later, brought back the answer that he never felt better and that he had no after effects.

CONCLUSIONS

1. From a review of the literature and an experience with three cases of tetanus successfully treated, it appears that tetanus antitoxin has a definite value when given intravenously in sufficient dosage.

2. In determining the dosage the severity of the case should be taken into consideration. For the adult and a severe case it may require from 150,000 to 200,000 units; however, many cases are reported cured with doses ranging from 60 to 100,000 units.

3. The intravenous method is the method of choice, and in an acute case should always be employed. It may be advisable to give 5,000 to 10,000 units into the spinal canal at the same time the initial dose is given.

4. The prophylactic dose of tetanus antitoxin should be at least 2,000 units. Statistics from the late war go to prove beyond doubt that it is of great value in the prevention of tetanus, but the fact that tetanus did occur in a delayed type in many cases where it was used, adds evidence to the belief that the prophylactic dose of 1,000 to 1,500 units was not sufficient. As a prophylactic measure it should be more generally used in all lacerated and penetrating wounds and especially in compound fractures. As a prophylactic measure it is not essential that it be given intravenously, but may be given subcutaneously. The time should soon come when all railroad companies and employers of labor will urge its use by the physician caring for their injured.

5. If there is an open discharging wound or a healed wound which is sore and painful, the local focus should receive thorough treatment. If the original wound is completely healed and the scar not painful I can see no advantage in its treatment.

Sypmtoms requiring stimulants or sedatives should be treated as they arise. If the cause of the disease is thoroughly treated the symptoms will take care of themselves.

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DISCUSSION

Dr. Paul F. Brown (Minneapolis, Minn.): In tetanus we are dealing with an obligatory anaërobe, an organism which absolutely will not grow in the presence of oxygen. This is fortunate for us, otherwise tetanus would be quite a common disease. We know by experiments on animals that the germ will not live in the blood of living animals. Why? Because the blood contains a considerable amount of oxygen in which the germs will not live. Neither will they grow readily elsewhere in the body on account of the loosely combined oxygen in the blood tissues, especially muscle. For example, inject into the blood stream of a rabbit a pure culture of tetanus germs, and this will not produce the disease. The germs grow locally where implanted, and the toxin travels up motor nerve trunks to the spinal cord. The tetanus germ is a saprophyte in soil and in the intestinal tract of herbivorous animals and human beings. It may be present up to 20 per cent in the bowels of hostlers and dairymen. Cases having a short incubation period are much more fatal than those of long incubation. The symptoms vary a great deal, from localized trismus to general convulsions. In some cases the development of the disease is very much prolonged, possibly several weeks. There are cases in which the wound has healed quite thoroughly. Later, manipulation or operation may then open up a spot where the spores are present and tetanus thus be produced.

The classes of wounds which are infected are generally those having considerable depth, or which have been contaminated by soil. However, very trival wounds will produce the disease, as pin pricks, nail punctures, insect stings, and even vaccination.

The tetanus germ produces a very strong toxin, which becomes firmly combined with nerve tissue, especially the cord. In this respect it resembles bacillus diphtheriæ the germ growing only where implanted. On account of the fact of its presence in the intestinal tract tetanus sometimes follows operations on the stomach, genito-urinary tract, and pelvic organs, but especially on the bowels. When combined with other germs in dirty wounds, the latter undoubtedly use up the oxygen present and, in that way, help to produce an area in which there is no oxygen, thus producing an anaërobic field.

It is an interesting fact that during the war the Surgeon General of the army issued an order that before operating on the lower bowel and pelvic region a prophylactic dose of antitetanic serum should be given. This was undoubtedly a very good idea because in the fields of France and Belgium the boys had to live under very unsanitary conditions, and the intestines contained perhaps more tetanus germs than would otherwise have been the case. We do not often see this complication following operations on the digestive tract in civil practice because of the preoperative measures instituted.

Dr. Arthur A. Law (Minneapolis, Minn): Certain points which the essayist and Dr. Brown have brought out need some elaboration. In the first place our perspective of tetanus in war surgery and in civil surgery must be entirely different.

I have talked with men who were in Germany at the beginning of the war, notably Dr. H. E. Robertson, who was in Germany when the war started, and the picture he drew with regard to tetanus among the soldiers was the most appalling it has ever been my misfortune to hear. The mortality was almost 100 per cent, for they lacked antitetanic serum, having early exhausted their supply.

In talking with British and French army surgeons who served during the early months of the war, they stated that the incidence of tetanus was very high and the mortality almost 100 per cent. Later, after a sufficient supply of antitetanic serum became available for all the Allies, the incidence dropped to almost zero. This was expressed by the report of the American casualty list. With total casualties of 250,000, only 36 cases of tetanus were reported.

In fighting over an agricultural country, where the terrain had been fertilized for centuries, the incidence of tetanus would be high. They were fighting over ground which had been ploughed and torn by shells, and they were for months in trenches and dugouts. Under these circumstances the skin and clothing of the soldiers were plastered with mud, so that, inevitably, infection with tetanus germs was almost constant. In the American army the order was posted that every wounded soldier was early to be given a prophylactic dose of antitetanic serum under the skin of the abdomen. There had to be three checks on that dose: first, a little "T" in indelible pencil mark on the forehead of the patient; second, a notation of "ATS" on his field medical card; and, third, the scar of the needle prick in his abdominal wall. If all three of these checks were not in evidence when he reached the base hospital, he was given another dose.

In the hospital with which I was identified, we had 7,200 casualties with but two cases of tetanus—both of the so-called delayed type. The chief surgeon of the A. E. F. issued an order which made it obligatory upon surgeons to give a second dose of antitetanic serum before doing any formal surgery within the first ten days after the soldier received his wound, because, if the man had been injured by a retained shell fragment or machine-gun bullet, or if pieces of clothing or other infectous material had been blown into his wound, these foreign bodies harbored the tetanus germs and delayed interference lighted them up, when secondary tetanus resulted—hence the order for the second dose of serum.

I have seen five cases of tetanus. One case was in the service of Dr. Dunsmoor, many years ago; a case of simple hernia operation, in which kangaroo tendon was used. Another case was one in which amputation had been made by a car wheel flange. The third case was that of a man who had part of his arm torn off in a mill, and his wound contaminated by flour dust. All three cases died. Of the two cases in Base Hospital No. 26 in France one lived. Both were given massive doses of antitetanic serum intraspinally and intravenously.

If it were possible to give antitetanic serum in every case of trauma the ideal would be approached, but this cannot be done, and I will tell why: In studying this subject for a discussion some years ago, I took the trouble to investigate the casualties of four transcontinental railroads from the time of their building, and found that they had only five cases of tetanus among the four of them, yet their injuries had run into the hundred thousand.

In a great coal mining industry, where they had a record of 150,000 injuries, they did not report a single case of tetanus, although nearly all of the injuries were received while working under ground. The report of the Industrial Commission of Minnesota, covering ten years, shows that only ten deaths from tetanus have been reported. Therefore, when we put the problem of tetanus up to insurance companies which insure other large corporations, and ask the privilege of giving antitetanic serum in every case of injury, they respond by quoting statistics which prove the extreme rarity of tetanus and assert that it is cheaper to pay the very occasional death claim rather than the enormus sum which would follow if antitetanic serum was given in every case of injury. Apparently the only way to solve the problem would be for the State to furnish antitetanic serum free so that it could be given in all injuries calling for it. I am sure we all give the serum in cases injured about horses and cattle, or near stables, yet there are many here, men with large practices, who have never seen a case of tetanus. All of us would like to give antitetanic serum in every case where its use is indicated, but until the price drops or the State furnishes it free, that will be impossible.

Dr. Joseph F. Quin (Milwaukee, Wis.): I have had one case of tetanus, and, unfortunately, I lost the patient. That case made such an impression on me that in my practice with the insurance companies I have asked the privilege of giving antitetanic serum, particularly in those cases in which there is a puncture of the sole of the foot occurring around barns and in yards where there is debris from teaming. I have not had occasion to suggest the use of it over a dozen times in the last two years, but the companies have always paid for the serum and want to see it administered.

Dr. George F. Thompson (Chicago, Ill.): I want to ask Dr. Smith two questions:

First, whether he knows of any statistics bearing upon the relationship between the period of incubation of tetanus and the curative period of antitetanic serum.

Nine years ago I made a study of the cases of tetanus that had been admitted to Cook County Hospital, and my investigation at that time showed that absolutely no case of tetanus in which the period of incubation was less than nine days recovered, no matter how much antitetanic serum was used. After that they recovered, but we know that most would have recovered even without the exhibition of antitetanic serum. I do not know whether or not any improvement has been made in those statistics.

Second, does Dr. Smith know anything about an improved serum that is manufactured by Lederle?

A surgeon has told me about an improved serum that Lederle was manufacturing, which experimentally, if not clinically, was lessening the mortality of tetanus.

Also I wish to ask Dr. Law if he remembers what the inculation period was in the two cases seen in France, and the amount of serum used in their treatment.

Dr. Law: I treated neither one of these cases. They were under the care of the Chief of the Department of Surgery of the Section, and I know that massive doses were given both intravenously and intraspinally. They were both delayed cases in which a shell fragment was removed later.

Dr. Axel W. Swedenburg (Thief River Falls, Minn.): Some years ago, when the picture of tetanus was fresher in my mind than it is today, I was called into the wilderness to treat a case about which I knew nothing, and I went prepared to treat almost anything but tetanus. I found a boy, eight years of age, giving a typical history of tetanus. He had stepped on a rusty nail out in the barnyard. The puncture was near the localized point of tenderness. He had a lymphadenitis on that side, and his jaws were so set that with the equipment at hand I could not get a view of his pharynx. I made a diagonis of tetanus and a prognosis accordingly. I found it impossible to get him to a hospital and gave him something to allay the pain and soothe him. When the people came in to have me sign the death certificate, two or three members of the family complained of having a sore throat and gave somewhat the history of the same thing the boy had had. I examined their throats, secured a culture, and found diphtheria.

Dr. Eric P. Quain (Bismarck, N. D.): The statement that there were only 36 cases of tetanus in the A. E. F. no doubt refers only to primary tetanus. I am convinced that there were many cases of secondary tetanus not included in this number. Two such cases came under my observation. There was an order that all secondary operations on infected wounds should be preceded by a prophylactic dose of antitetanic serum, but this was occasionally forgotten, and in such instances secondary tetanus developed from time to time. The first case I saw had a fracture of the femur with a discharging wound. One day an artery forceps was introduced into the wound and a small piece of the soldier's uniform removed. It did not seem that the tissues about the wound had been disturbed much, if at all, yet a few days later the patient developed marked symptoms of tetanus. His life was saved by the free use of antitetanic serum.

A very interesting point is the employment of the large doses of antitetanic serum. Recently I saw a patient who had a finger crushed and amputated in a corn-husking machine. The wound was infected, and on the seventeenth day a protruding piece of the phalanx was re-amputated under local anesthesia. Before the operation the patient complained of some thoracic pain associated with respiration. Pleurisy was suspected, but examination failed to show anything objectively, and the operation was done. Pain and stiffness persisted and spread gradually over both shoulders during the next two days. On the third day the neck and jaw became involved, and a diagnosis of tetanus was made. The bacilli were found in the discharging finger, and the patient had a very severe siege of tetanus.

During the following week he was given 115,000 units of serum, mostly intravenously. He recovered.

Dr. Frederick A. Dunsmoor (Minneapolis, Minn.): I would like to ask the essayist if he knows of any cases which have been cured by the intraspinal injection of the serum, where no other treatment has been given.

Dr. Smith (closing): Regarding the relationship between the length of the incubation period and the size of doses that have been required to bring about a cure: I think there is no doubt but that the cases which have a long incubation period run a milder course and in general require smaller doses to effect a cure. Many of them probably will get well through the antitoxin which is formed within the system itself if the infection has been mild enough to delay the incubation period.

Regarding the use of the new antitetanic serum manufactured by Lederle, referred to by Dr. Thompson: I have had no literature on the subject. The antitoxin that we have used has been Squibb's.

In answer to Dr. Dunsmoor's question, Does the intraspinal treatment alone cure the disease, I would say that one of the men working in conjunction with the Research Laboratory, Department of Health, New York City, advocates and has advocated the treatment of these cases by the intraspinal route. In their article, however, they admit that the intravenous method may be almost as good.

VINCENT'S ANGINA

By T. C. Bonney, D.D.S.
ABERDEEN, SOUTH DAKOTA

It is not my intention to wander afar into the many fields of investigation that a lengthy discussion of Vincent's angina would require, but, rather, to outline a course of treatment that has proven of real value in my hands during the past two years. It has been my good fortune to be associated for some time with Dr. C. E. McCauley, a physician of many years experience, who kindly placed his laboratory at my disposal, and whose advice and assistance have been of great value in many of the more serious cases. Together we worked out (stumbled upon would probably express it better) the course of treatment, to be later described, which has proven most gratifying in practically every case with which we have had to deal. So much has been written in the past few years regarding this most distressing malady that we feel we can add nothing new, but it may not be amiss to again point out the clinical symptoms that make the diagnosis comparatively easy. The symptoms in the order of their frequency in the cases coming under our observation are as follows:

1. Pain, which is often very severe,—sufficiently so to prevent sleep and to make the eating of anything but the softest food practically impossible.
2. Foul odor of the breath. This odor once recognized can hardly be mistaken.
3. Excessive secretion of saliva.
4. Ulceration. In all except two of our cases (a matter of 75) the ulceration was confined to the gingivæ. In one of these two cases there was an ulcer on the soft palate, and in the other it invaded the tonsils. This ulceration may vary from the merest line in very early cases to an extent that involves the interproximal gingivæ, and it is characterized by a yellowish mass of necrotic tissue superimposed on a highly sensitive mucous membrane. Removal of this necrotic tissue results in very free hemorrhage.
5. Temperature.
6. Glandular involvement.
7. Lassitude.
8. Loss of appetite.

In our experience we have encountered three or four cases in which a diagnosis would have been impossible without a microscopic examination of smears made from the mouths of the patients, but by far the greater number offered little or no difficulty in the matter of diagnosis. We might say here that our first case passed unrecognized, was regarded as syphilitic, and was referred to the patient's family physician, who took blood for a Wassermann and gave a prophylactic dose of salvarsan. The Wassermann was negative. We applied tincture of iodine to the single ulcer, which in this case was on the soft palate, and the patient promptly recovered, probably as a result of the dose of salvarsan, though it is possible the iodine may have done some good.

In the three or four cases above referred to, the only symptom complained of was pain. This was of a vague nature, and the patients described their mouths as "being sore all over." In these cases there were no foul odor of the breath, no ulceration of the gingivæ or oral mucosa, and no objective symptoms that would lead one to suspect Vincent's angina. Microscopic slides, however, showed large numbers of the fusiform bacillus and Vincent's spirillum.

Had we not learned through past experience to be suspicious of all mouths these cases undoubtedly would have been dismissed with instructions to "forget it," or words to that effect, only to have returned later with the disease well advanced and much more difficult of management. We believe that many obscure cases of "sore mouth" that are difficult to diagnose through lack of definite symptoms, will be found through microscopic examination to be Vincent's angina in its early stage, and we would earnestly suggest that smears be made in all such cases. In the more advanced stages smears are unnecessary, though interesting.

The treatment consists in applying 50 per cent silver nitrate to all ulcerous areas after swabbing off the necrotic tissue. In those cases where the interproximal gingivæ has been destroyed, pledgets of cotton dipped in the silver solution are packed into the spaces and left for four or five minutes. We are well aware that many authorities decry the use of strong solutions in these cases and lay great stress upon the necessity of avoiding injury to the oral tissues during treatment; but we feel sure that any one who has seen the remarkable results that the above treatment gives, will agree with us that the injury done to the tissues of the mouth by the above solution is vastly less than that resulting from the disease itself, when treated over a period of many weeks with mild antiseptics and silver nitrate, chromic acid, phenol, and similiar agents in 5 to 10 per cent solutions. In those cases in which the ulceration has only just begun, one, or at the most two, applications are all that are required, and it seems to us that any agent that will reduce the time of treatment from a matter of ten days to three months, which is the ten necessary in order to gain access to the points to from one to two or three days in most cases, is well worth a trial. For a mouth-wash we prescribe the following:

℞ Bichloride of mercury, gr. 1.
Hydrogen peroxide, fl. oz. 4 m.
Sig.: Dilute one-half with water and use as a mouth-wash three or four times daily.

While we prefer this for a mouth-wash, it is sometimes quite irritating, and in such cases we prescribe a saturated solution of potassium chlorate with instructions to use it freely as a mouth-wash.

In cases in which there is a rise of temperature, with or without glandular involvement, sodium salicylate in doses of five grains every hour to the point of saturation, is of great value. The removal of crowns or bridges is often necessary in order to gain access to the points it would be otherwise impossible to reach, and frequently it is necessary to extract one or more teeth in the advanced cases, though this should never be done till after the acute stage is passed.

The excellent results obtained with silver nitrate, 50 per cent solution, in the treatment of this condition make us feel sure that if it is possible to reach every infected spot when treatment is commenced, one application will be all that is necessary.

Pure chromic acid (in the form of a bead made by melting the crystals on a platium loop) is advocated by many as being just as efficient as the treatment we have outlined, but we have had no experience in its use. Dr. H. A. Wells, of this city, is, however, very enthusiastic over the results he has obtained from its use, and the following case-history will, we feel sure, be of interest. The patient suffered long and was treated with, or himself tried, nearly everything ever heard of for the relief of this disease, even going so far as to try to buy "chromic acid beads."

CASE HISTORY

Patient of Dr. H. A. Wells

Mr. X., aged 30. He first noticed the condition on August 10, 1921, which was characterized by a swelling on the lower right jaw and a large whitish patch over the right tonsil. It was diagnosed as Vincent's angina, and was treated for eight days with 7 per cent chromic acid. Patient was improving. On August 19 he was referred to the hospital where a smear was made which showed large numbers of the fusiform bacilli and Vincent's spirilla. He was treated with a spray of 5 per cent chromic acid till August 23, during which time he got progressively worse.

A Wassermann was made August 23, and was reported "doubtful plus." The Wassermann made on August 30 was reported "positive plus." One made September 9 was reported "negative." On September 13 he was referred back under another name for another Wassermann, which was reported "negative."

He was then sent back to a dentist who treated him from September 14 to September 20 with a 7 per cent solution of chromic acid. His mouth was getting along in good shape when the dentist recommended that the patient did not need hospitalization (the patient was an ex-service man under treatment in a Government hospital), so he was dismissed and being without funds knocked around trying any and everything he could lay his hands on to get relief from the condition, which was getting worse and worse as the weeks went by. Finally on November 9, three months from the time he first noticed the infection, he came under the care of Dr. Wells. He was given one treatment with pure chromic acid and was instructed to use the bichloride-peroxide mouth-wash above described; and when we saw him on the afternoon of November 19 his mouth was in splendid condition.

As said before, we have had no experience with the use of chromic acid in this disease, but we feel sure the above history is illuminating in several respects.

THE
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DR. FREDERICK ANGIER SPAFFORD

The announcement of the death of Dr. Frederick A. Spafford, which occurred last week, will carry a sense of personal loss probably to more men in that state than would the announcement of the death of any other citizen of South Dakota. His was a genial, forceful, high-toned personality. He was a scholarly man. He was at once an old-time physician and a scientific physician. He knew medicine as an art and as a science. His contact with men, sick or well, was healing, for he studied the humanities in both literature and life. He had broad sympathy; he gave service.

Dr. Spafford was a graduate of Dartmouth Medical School, class of '79. He began practice in Flandreau in 1884, and was at once recognized as a physician and surgeon of unusual attainments. He soon became a leading citizen of the state, and occupied many positions of trust and honor, and whenever he accepted a position of trust, he accepted both its honor and its obligation, and performed all the duties of such position to the full measure of his ability—and to say this truthfully is to give rare praise.

At the time of his death he was a member of the Board of Regents of South Dakota, of the American College of Surgeons, the American Medical Association, and other organizations, and secretary of the State Medical Association, etc. During the World War he rendered the Government great service in the mobilization of the medical men of South Dakota, and he served in other capacities where his ability and devotion won him a large measure of praise.

As an associate editor of The Journal-Lancet he was ever ready to render the paper service, and often put us under great obligation.

He was a member of the American College of Surgeons, the American Medical Association, and other medical organizations.

He died of heart disease at the age of 66.

THE MINNEAPOLIS CLINIC WEEK

Progress is being made by the Committee in the arrangement of the program for Minneapolis Clinic Week, April tenth to thirteenth, inclusive. Also other men in Minneapolis are doing their share of work in providing for the clinics to be given before the Congress of Internal Medicine. The afternoon programs of Clinic Week are practically arranged for with the exception of the speakers who follow the clinicians.

It was decided to hold one afternoon meeting in which goiter in its various aspects is to be discussed; the second afternoon is to be devoted to pediatrics; and the third afternoon to the various phases of tuberculosis, and this is to be a repetition of the very excellent program that was presented at the meeting of the Hennepin County Medical Society in February. That means that twelve papers will be presented, each of five minutes duration. This symposium will be concluded in one hour; yet it takes up every phase that the general practitioner meets with in his work among tuberculous people. One afternoon is to be devoted to clinics in neuropsychiatry, and we hope to be able to present cases of interest that are constantly occurring in the daily work of medical men,—nervous diseases, both functional and chronic; and mental diseases, mostly of the milder types, although a number of cases of real active psychosis could be presented were it feasible.

The attention of the clinicians is called to one or two important suggestions: 1. That no clinician will be permitted to give a clinic unless he has paid his fee to the secretary of the Clinical Section. 2. We urge, particularly, that men who are to give clinics will begin at the earliest possible date to formulate their material, to have it ready at least on the program or so the printer may have the program by the seventh and eighth of April, for Monday's program must be printed and ready to distribute on Monday noon. That means that the program must be in the hands of the secretary or his associate on Saturday at noon, not later, and that the programs for the following day, Tuesday, must be in the hands of the program committee by Monday noon. Wednesday's program must be ready on Tuesday morning, and Thursday's program on Wednesday morning. The members of the Committee are very anxious this year that no delays shall occur except those that are wholly and plainly unavoidable. This insures greater success for the meeting and means that everything will be in readiness for our numerous visitors.

Blanks will be sent out by the secretary to the clinicians, and the Committee is particularly anxious that the instructions be very carefully read. Last year we had a great deal of trouble. This year we hope to obviate it by a little closer attention to the details. The success of good clinics depends upon the personal interest of each member of the clinical association.

DOUBTFUL ADVERTISING BY MEDICAL MEN

A recent church publication consisting of eight pages about the size of ordinary note paper, came into our hands the other day, and the contents of the paper are an incentive to comment, notably for the advertising carried.

One page is devoted to the publicity side of this publication, and on the page there are the advertisements of three dentists and seven physicians—some of them advertise their specialties, while others simply indicate the offices they occupy, their residences, and their telephone numbers. The whole plan is, perhaps, more or less ethical, with an emphasis on the less, because in one instance the solicitor of the advertising neglected to inquire into the fitness of one of his (or her) advertisers, who is known as a man out of the medical range. He belongs to nothing, yet he advertises himself as highly successful in treating chronic disorders, evidently of every nature, and, incidentally, he says he can fit glasses to relieve nerve-strain. The other men are surgeons or nose and throat men.

If this kind of advertising is considered ethical, then we are more or less amused by some of the other advertisements, for on the same page there follows close behind the doctors' the undertaker's advertisement; and it is quite fitting, too, because in many cases the undertaker is a member of the same church as the doctor, and if the doctor should have a mishap or accident, or if by the intervention of "Divine Providence," a patient should die, one has to search but for a moment for an undertaker who belongs to the same congregation.

It is commonly known that with a certain class of physicians advertising in their church papers is quite the accepted thing, and we have in our possession pictures of doctors, talks given by them about operations performed by them, and sundry other evidences of advertising among church people. A few years ago the Executive Committee of the Hennepin County Medical Society took this matter up, and hoped, in a quiet way, without censuring a man, to put an end to this selective advertising. But it all came to naught, in spite of the fact, too, that the man who attempted to convince the advertiser of his unusual necessary activities did not advertise himself, but the advertisements appeared from time to time just the same. Of course, any man is at liberty to put his professional card in the public press, but, if he advertises his specialty and tells what he thinks he is able to do, he is subject to criticism; he creates dissension among his fellowmen.

The only remedy for these evils seems to be in a man's reaching his position on merit, and conducting himself so that no complaints or faults can be found with him. But as there are so many imperfections in the present life, those who advertise in the secular press may hope for immortality, wafted up to heaven on a wave of printers' ink supplied by the church.

CORRESPONDENCE

A CRY FROM MACEDONIA

The Journal-Lancet:

Please find enclosed check for —— as per enclosed statement, with many apologies for the delinquency, and with thanks to you for not discontinuing The Journal-Lancet, as I find it very helpful, and would be reluctant to part with it. I must have got the delinquent idea from my patients, and you got the patience from the doctors.

If it would be "apropos," I would like to make a few suggestions to the editorial department for the benefit of the country doctor at large,—for instance, the relation of the ordinary practitioner to the specialist, etc.; and I would like to hear what the rank and file think of it, and also to hear the other side. That is only one of the many things that confront the country practitioner, as well as the best way to deal with malnutrition in Aunt Eppie's baby, when her husband Bill sits around all day with arteriosclerosis, and albumin in his urine, trying to take care of the mitral murmur in his heart. That sounds like a big order, but those homely subjects could be nicely grouped, it seems to me, and discussed from a country doctor's standpoint. We, of necessity, are not equipped with laboratories, and so are at somewhat of a disadvantage compared with our city brothers, yet there are more vital things requiring instant judgment and self-reliance than the average city "medico" contends with, because of those conditions.

Hear the cry from Macedonia, and, like Paul, send us the medical gospel.

Yours very truly,
C. M. Pierson, M. D.
Wheaton, Minn., Feb. 22, 1922.

MISCELLANY

MATERNAL WELFARE

A joint committee of the American Gynecological Society and the American Child Hygiene Association, of which Dr. Fred L. Adair was chairman, made an exhaustive report, which we are requested to print. The Committee seeks constructive criticism upon this report. Dr. Walter R. Ramsey, of St. Paul, is the only other Western member of the Committee. Criticisms may be sent to either of these physicians.

REPORT OF COMMITTEE

Any communications may be sent to Fred L. Adair, M. D., Chairman, 730 La Salle Building, Minneapolis, Minnesota. Any member of the Committee, however, will welcome suggestions or inquiries regarding the report.

The Committee considers its proper functions to be:

A. Elaboration of a complete scheme of maternal welfare as ideally developed, emphasizing the most important points for starting the development of such a plan with the idea of educating the public to the necessity of this work and to serve as a basis for governmental activity. The following skeleton plan is presented:

I. Preservation of life and health of the mother.
  a. Decrease in the number of infections following abortion and childbirth.
  b. By providing better trained attendants.
  c. By educating the laity as to the proper preparation and necessity for proper supervision during pregnancy, etc.
  d. Inspection and control of institutions, etc., caring for maternal cases.
  e. Prevention and treatment of venereal disease in association with pregnancy.
  f. Control of toxemias.

II. Increase in the number of fruitful pregnancies by
  a. Decrease in the amount of sterility.
    1. By diminution in the number of infections following abortion and childbirth.
    2. By diminution of venereal disease, especially GC.
  b. Diminution in the number of abortions by
    1. Diminution in the number of spontaneous abortions by educating as to proper care when threatening symptoms develop.
    2. Diminution in the number of induced abortions.
      (a) Self induced.
      (b) Criminal operations.
      (c) Therapeutic abortions.
      N. B. (1) We recommend that hospitals require the written sanction of at least two reputable medical men before permission to perform an abortion is granted.
      (2) We recognize the desirability of making abortions reportable to the health authorities.
    (c) Diminution of the number of premature birth deaths.
      1. Education and supervision.
      2. Provision for proper care of premature infants.
      3. Recognition and treatment of syphilis.
    (d) Diminution in the number of still-births.
      1. Improvement of statistics and methods of reporting still-births with causes.
      2. Education of laity and profession.
      3. Provision of better antepartum and intrapartum care.
      4. Better care of syphilitics.
    e. Diminution in the number of neonatal deaths.
      1. Recognition of the importance of these deaths.
      2. Methods of prevention.
      3. Education of laity and profession.
      4. Provision of better antenatal, intrapartum and postpartum care.
    N. B.—More careful scientific study of both stillbirths and neonatal deaths, together with causes of abortion, miscarriage and premature birth.

III. Better facilities for the care of the unmarried mother for her own protection and that of her offspring.

B. Definition of the relationship of this work to other health and welfare activities such as infant and child welfare; venereal disease campaign; anti-tuberculosis; boards of health; Red Cross and nursing activities, as well as social agencies; certain eugenic problems.

C. To have some responsible agency of representatives and well qualified men to advise with the governmental agencies on the problems of maternal welfare. This may be enlarged to become a part of a sort of institution or academy of sciences which could well be an advisory body on matters pertaining to public health and welfare.

D. It is particularly important to work out problems of maternal and child welfare in co-operation with the pediatrists, by means of a joint committee representative of the leading national societies. We recommend that this joint committee on maternal welfare work with one representing the American Pediatric Society to elaborate maternal and infant welfare programs.

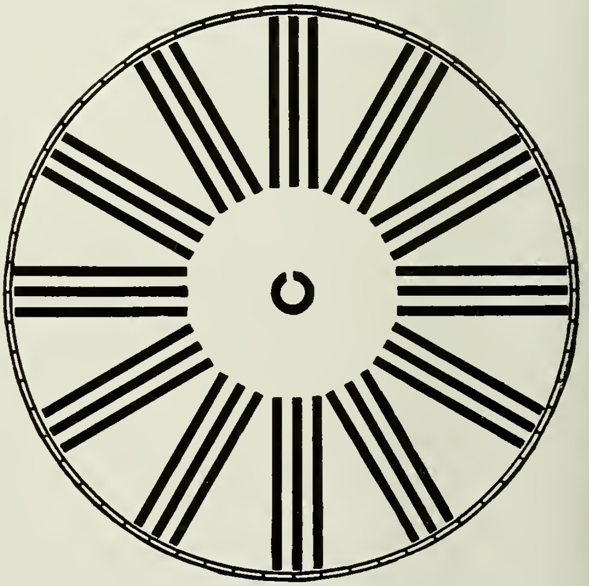
A VISION TEST-CHART

The accompanying cut illustrates a practical and convenient vision test-chart for use in schools by teachers and visiting nurses. It may also be used to advantage by general practitioners. The special feature of this chart consists of a broken circle 8.7 mm. in diameter which subtends an angle of 5″ with an opening of 1″ at a distance of twenty feet. The determination of the direction of the opening in the circle is the vision test.

The examiner turns the chart on its axis to assume various positions. The pupil, by means of a pencil, indicates the direction of the opening in the circle. The examiner notes the correctness of the answers by the arrow on the back of the chart which points in the direction of the opening. The examiner stands at a distance of twenty feet from the pupil whose eyes are to be tested. If the opening in the circle can be seen several times consecutively at each change of position it indicates normal vision, or twenty-twentieths, for that eye. If the opening in the circle cannot be located at this distance the examiner advances five feet and repeats the test, giving a vision of fifteen-twentieths, etc. The astigmatic chart is used in the usual way.

In many respects this chart has decided advantages over all other charts. I resort to it almost daily in my practice to test the vision of children who are so timid that they will not answer questions audibly, but will readily point in different directions to indicate their answers. It is also invaluable in testing the vision of children who do not know the names of letters, and, since the introduction of the phonetic system of teaching in our schools, most small children do not know their letters. Also with the letter or object test-charts the pupils may memorize or familiarize themselves with the letters or objects and a test of any value is no longer possible. I know of several young men with defective vision who successfully passed the vision test at the war board examinations by memorizing the letters on the charts. Another advantage is that any number of pupils may be examined at one time by having those who see the direction of the opening raise their hands and eliminating them according to the correctness of their answers.

The chart has directions printed on the back for the examiner; it is only six inches in diameter and is, therefore, compact and cheap and not easily crushed or broken.



DIRECTIONS ON BACK OF CHART

THE JACQUOT VISION TEST-CHART FOR SCHOOLS

Hold chart 20 feet from pupil whose eyes are to be tested. Test one eye at a time only. With one eye covered with a card have pupil indicate the direction of the opening of the "C" with a pencil held in the proper position. The arrow on the back of the chart indicates to the teacher the direction of the opening of the "C."

If the opening in the "C" can be seen several times consecutively when changing its position by rotating the chart on its axis at a distance of twenty feet or more, it indicates normal vision for that eye, or twenty-twentieths. If opening in "C" cannot be located advance 5 feet, repeat test. This distance gives fifteen-twentieths vision; 10 feet, ten-twentieths vision, etc.

Astigmatism is indicated if one or more set of lines on the chart is seen more distinctly than the others.

In either case when vision is less than twenty-twentieths, or when astigmatism is present, or even when normal vision is present but pupil complains of habitual headaches, have him consult a physician specialist on the eye for further examination and correction. (Copyright 1918.)

G. L. Jacquot, M. D.

Tyler, Minn.

A GLIMPSE AHEAD

We used to read on fences, in letters big and bold, of "little regulators" for livers: now, behold, the woods are full of regulators with brazen cheek and lungs who make their living regulating all things—except their tongues. They'll regulate the birth of folks, their business and their breath, their drinking, smoking, eating, and, possibly, their death. The family doctor's passing—his job is on the blink. You later breed of doctors will not even have to think. By machinery they'll discover one's ailments, worries, scads: and all thinks will be "standardized" for you, my lucky lads. The League of Women Voters will fix the rules for you, and some high-salaried pragmatist will tell you what to do.

F. H. Knickerbocker, M. D.

Staples, Minn.

NEWS ITEMS

Dr. H. E. Perley, of Eveleth, is doing postgraduate work in Chicago.

Dr. R. J. Morrisey has moved from Ft. Pierre, S. D., to Hot Springs, S. D.

Dr. F. O. Brigham, who has been practicing at Stanley, N. D., has moved to California.

Dr. Blake Lancaster, of Wahpeton, N. D., is doing postgraduate work in New York City.

The hospital at Lake City has been closed for lack of patronage sufficient to pay running expenses.

Dr. H. A. Daniels, of Two Harbors, and Dr. R. A. Eisman, of Pittsburg, Pa., have joined the staff of the More Hospital, of Eveleth.

Dr. E. S. Porter, of Lewistown, Mont., who has been doing postgraduate work in Chicago, has returned and resumed practice.

The wife of Dr. J. F. Corbett, of Minneapolis, president of the Minnesota State Medical Association, died last week after a long illness.

Dr. William H. Sigler, of St. Paul, who has not been in active practice for several years, died last month. Dr. Sigler had lived in St. Paul forty years.

Dr. Frederick A. Spafford, of Flandreau, S. D., died last week at the age of 66. Editorial comment on Dr. Spafford's useful life is made on another page.

Dr. Frank Lynam, of Duluth, is one of six American physicians selected by Herbert Hoover to direct the relief work now being done by America in Russia. Dr. Lynam left for Russia last week.

Dr. A. J. Chesley, executive secretary of the Minnesota State Board of Health, is in Washington attending a conference with the Surgeon General for health officers.

Dr. G. W. Phillips, clinical director of the Aberdeen Public Health Hospital (U. S. Hospital No. 65), of St. Paul, has been transferred to a like position in Portland, Ore.

Dr. Seth H. Howes, acting staff physician of the Minnesota State Hospital for the Insane at St. Peter, has resigned and has gone to the staff of the Union Hospital of Hastings, Mass.

The citizens of St. James are strongly urging the St. Francis Sisters of Rochester to take over the management of the St. James Hospital, which has a well-located and commodious building.

A conference of public health workers in Minnesota will be held on the 20th to the 25th, inclusive, in the Institute of Anatomy, University of Minnesota. The conference was called by the State Board of Health.

At a special meeting of the Northwestern District Medical Society held in Minot February 16, Dean French of the University Medical School and President of the North Dakota State Medical Association, read a paper on the "History of Medicine."

Dr. H. M. Bracken, medical officer of U. S. Public Health Service Hospital No. 68 (formerly the Asbury Hospital) in Minneapolis, reports that 2,905 disabled soldiers were treated during the first year's work of the hospital, which ended February 8th.

Dr. E. Klaveness, who came to Minneapolis from South Dakota a couple of years ago to take charge of the medical work of a large insurance company, is again back to practice. He specializes in skin diseases, and has offices in the Palace building.

Dr. N. L. Werner has been appointed health officer of Red Wing, succeeding Dr. W. M. Sweeney, who has been connected with the department for fifty years and has done his work so efficiently as to call forth praise from the State Board of Health.

A psychopathic unit for the University or the General Hospital in Minneapolis has been so strongly urged by Dean Lyon of the Medical School and Superintendent W. E. List of the General Hospital, as well as by many others, that such a unit will certainly be built.

The mid-summer meeting of the Southern Minnesota Medical Association will be at Rochester on June 19th and 20th. The clinics in all departments of the Mayo Clinic will be open for uses of the program. The banquet will be given at the New Kahler Monday evening.

The proposal to enlarge the Minnesota State Tuberculosis Sanatorium at Walker sufficiently to take care of 500 tuberculous war veterans received cordial consideration at Washington, and, no doubt, will be carried out if Congress makes the appropriation now under consideration.

Dr. Norman C. Davis, of Badger, a Minnesota pioneer physician, died last week at the age of 66. Dr. Davis graduated from the College of Physicians and Surgeons of Keokuk, Iowa, in '84, and began practice in Minnesota at that time. He practiced in Sleepy Eye nearly forty years ago.

Standardized medical inspection of all dependent children in the Minneapolis public schools is to be made under the supervision of the Northwestern Pediatric Association, of which Dr. N. O. Pearce, of Minneapolis, is secretary. An effort will be made to do a like work throughout the state.

The free dispensary of the Medical School of the University of Minnesota had 69,133 visits from 15,647 patients last year. As 13,000 of these persons were registered as residents of Minneapolis, the vast volume of medical work done for the city's dependent poor and economically disabled is indicated.

Dr. W. F. Hamilton, health commissioner of Havre, Mont., a city of less than 6,000 people, says the compulsory use of the city sewers and the collection of garbage by the city, recently begun, will soon prevent most of the contagious diseases and very greatly reduce the mortality and morbidity rates of that city.

Dr. H. E. French, secretary of the State Department of Public Health of North Dakota, is pointing out, in public addresses, that the public health agencies of that state are too varied and need co-ordination. This is equally true in all Northwestern states. The number of such agencies in Minnesota is inexcusable.

The Northwestern District Medical Society of North Dakota elected the following officers at its annual meeting held in Minot: President, Dr. R. W. Pence; vice-president, Dr. C. J. King; secretary-treasurer, Dr. A. M. Carr; censor, Dr. L. H. Kermott; delegates, Drs. A. M. Carr and G. C. Hanson; alternates, Drs. S. J. Hillis and R. W. Allen.

The dates of the fifth Minneapolis Clinic Week should not be forgotten by a single one of our readers—April 10 to 13, inclusive. The meeting will be the best of the five annual gatherings of medical men in Minneapolis under the auspices of the Hennepin County Medical Society. The Medical School of the State University will give splendid co-operation.

The Minnewaska summer hotel on Lake Minnewaska near Glenwood has been purchased by a corporation and will be converted into a health resort; mud baths will be a part of the treatment. A water resembling Waukesha water, but with more lithia in it, has been discovered near the hotel, and will be extensively used. Dr. C. R. Christensen, of Morris, will be the medical director.

Dr. Alonzo E. Clough, of Madison, S. D., died last month at the age of 72. He was born in St. Lawrence County, N. Y., and went to Iowa in 1856, thus becoming a very early pioneer in that state. He graduated from the P. & S. College, of Keokuk, Iowa, in the class of '78, and continued his studies in the New York Polyclinic. After practicing four years in Harper's Ferry, Iowa, he moved to Dakota, in 1876.

Dr. Jacob E. Bowers, of Duluth, died last month at the age of 81. Dr. Bowers was born in Canada, but graduated in medicine in this country. He graduated from the Medical School of the University of Michigan with the class of '69. He spent a year in special study in Europe, and became superintendent of the State Hospital at Rochester, Minn., and later was on the staff of the Hospital for Insane at St. Peter. He had lived in Duluth over thirty years. He specialized in mental diseases.

A BACK NUMBER OF THE JOURNAL-LANCET WANTED

We very much need two or more copies of our issue of February 15, 1920; and we will thank any subscriber who will send us a copy of that date.

EXPERIENCED NURSE IN SMALL HOSPITAL WANTED

An experienced graduate nurse in an eight-bed hospital 50 miles from the Twin Cities is wanted. German Catholic preferred. Compensation is $100 a month with a good room and board in the hospital, where the doctor and his wife live. A willing, competent woman can have permanent work. Give references. Address 219, care of this office.

MINNEAPOLIS OFFICE FOR RENT

Office for rent in a physicians' building in Minneapolis with joint use of furnished reception room. Telephone Main 8541.

A MALE TECHNICIAN WITH HIGH QUALIFICATIONS WANTS A POSITION

A man who has taken two years of medical work and two years of laboratory work and has also had large experience in laboratories, is open for the head of a laboratory in a hospital or clinic. Can do practically all laboratory work. Will accept a moderate salary. Address 220, care of this office.

GRADUATE NURSE WANTS OFFICE POSITION

A graduate nurse wants a steady position, preferably in a doctor's office. Best of references. Address 216, care of this office.

POSITION WANTED BY A TECHNICIAN

A young woman who took a full course in laboratory work in the St. Paul City and County Hospital, desires laboratory work in the city or outside. Can do all the routine laboratory work. Address 223, care of this office.

MINNEAPOLIS OFFICE FOR RENT

A modern office with a dentist in North Minneapolis, on one of the best corners in that part of the city, is offered at a very low price. The reception room is well furnished, and the office for rent is partially furnished. A good practice can soon be obtained. Address Dr. J. L. Krishef, Dentist, 1028 Plymouth Ave. N., or call Cherry 2687.

SURGEON WANTS WORK WITH A CLINIC OR IN A FIRM

A 1915 graduate of the University of Minnesota who has been the assistant for the past three years of one of the leading surgeons in Minneapolis, desires work as a partner or in a Clinic. Can also help in general practice, if required. Speaks Norwegian fluently. Highest of references furnished. Address 225, care of this office.

FOR SALE, NORTH DAKOTA UNOPPOSED PRACTICE

An unopposed general practice, established sixteen years; prosperous community; collections over $4,000 cash last year. Inland town, good school, churches and bank. Nearest doctor fifteen miles. Free house rent. County physician and insurance appointments transferable. Will sell at sacrifice office equipment and drugs and thoroughly introduce. Going to specialize. Address 226, care of this office.

OFFICE WANTED IN MINNEAPOLIS

A physician now located in the Masonic Temple wishes to obtain, with another physician or a group, an office in a modern down-town building. Address 222, care of this office.

DENTIST WANTS OFFICE WITH PHYSICIAN

A Minneapolis dentist wants to share an office in the Minneapolis loop district with a physician. Address 226, care of this office.

LOCUM TENENCY WANTED

A competent practitioner in an established partnership is available for locum tenency. Address 217, care of this office.

PHYSICIAN WANTED

In a Minnesota village of 450, with a splendid mixed German, Irish, Scandinavian, and American population. Nearest competition, 14, 14, 20, and 32 miles, respectively. Good consolidated school and four churches, fine new creamery; fine office and living rooms over the bank. Address 213, care of this office.

PRACTICE FOR SALE

A $10,000 practice in a town of 12,000 in Southern Minnesota with fine hospital. Can turn over industrial work that pays $150 a month and brings in more. Terms, $1,000 cash, covered by office equipment. Reason for selling, forming partnership elsewhere. Address 214, care of this office.

PHYSICIANS LICENSED AT THE JANUARY (1922) EXAMINATION TO PRACTICE IN MINNESOTA

BY EXAMINATION

Name	Where and When Graduated	Address
Adams, Robert Warren	U. of Minn., M. B., 1921	General Hospital, Minneapolis
Bregel, Fred L.	U. of Minn., M. D., 1918	629 Washington Ave. S. E., Minneapolis
Chang, Pu Yung	Harvard, China, M. D., 1917	Hopewell Hospital, Minneapolis
Christie, Robert L.	U. of Minn., M. D., 1917	Long Prairie, Minn.
Crompton, Chas. R. B.	U. of Toronto, M. B., 1915	Mayo Clinic, Rochester, Minn.
Daniel, Lewis M.	U. of Minn., M. B., 1921	914 Lowry Bldg., St. Paul, Minn.
Dvorak, Benj. A.	U. of Minn., M. B., 1921	University Hospital, Minneapolis
Dahlin, Ivor Theo.	U. of Minn., M. B., 1921	Duluth, Minn.
Farnham, Russell Milton	U. of Minn., M. B., 1921	2416 Fremont Ave. So., Minneapolis
Ford, Burton Calvin	U. of Minn., M. B., 1921	St. Mary's Hospital, Minneapolis
Green, Robert Gladding	U. of Minn., M. B., 1921	Univ. of Minn., Minneapolis
Hastings, DeForest R.	U. of Minn., M. B., 1921	421 Walnut St. S. E., Minneapolis
Jernstrom, Roy E.	U. of Minn., M. B., 1921	1800 3rd Ave. So., Minneapolis

Kucera, Frank Jos.	U. of Minn., M. B., 1921	Hopkins, Minn.
Larson, Leonard Winfield	U. of Minn., M. B., 1921	329 Union St., Minneapolis
Leopard, Brand A.	U. of Minn., M. B., 1921	Melrose, Minn.
Lowe, Earl Raymond	U. of Minn., M. B., 1921	N. P. Hospital, St. Paul, Minn.
Lund, Harold O.	U. of Minn., M. B., 1921	St. Mary's Hospital, Minneapolis
Maeder, LeRoy M. A.	U. of Minn., M. B., 1921	512 S. E. Delaware St., Minneapolis
Morris, Ralph Edwin	U. of Colorado, M. D., 1902	244 Nelson Ave., St. Paul, Minn.
Meyer, Paul F.	U. of Minn., M. B., 1921	Belle Plaine, Minn.
Murdy, Robert Colliver	U. of Minn., M. B., 1921	1021 S. Wash. St., Aberdeen, S. D.
McMurtrie, Wm. Burns	U. of Minn., M. B., 1921	Duluth, Minn.
McInerny, Maurice W.	U. of Minn., M. B., 1921	St. Mary's Hospital, Minneapolis
Owens, Percy Laing	U. of Minn., M. B., 1921	General Hospital, Minneapolis
Oppegaard, Chester L.	U. of Minn., M. B., 1921	University Hospital, Minneapolis
Plankers, Arthur G.	U. of Minn., M. D., 1918	858 Cherokee Ave., St. Paul, Minn.
Richardson, Geo. Edward	U. of Minn., M. B., 1921	510 Essex St. S. E., Minneapolis
Radtke, Herman P.	U. of Minn., M. B., 1921	429 Union St. S. E., Minneapolis
Spurzem, Raymond Jacob	U. of Minn., M. B., 1921	University Hospital, Minneapolis
Shepard, Wm. P.	U. of Minn., M. B., 1921	512 Delaware St. S. E., Minneapolis
Stewart, Louis Arthur S.	McGill, M. D., 1916	Rochester, Minn.
Spain, Roderick Jos.	National U. Dublin, Ireland, M. D., 1918	Duluth, Minn.
Thordarson, Solveig S.	U. of Minn., M. B., 1921	2202 Blake St., St. Paul, Minn.
Tanquist, Edwin John	U. of Minn., M. B., 1921	Swedish Hospital, Minneapolis
Urberg, Sofus E.	U. of Minn., M. B., 1921	329 Union St. S. E., Minneapolis
Wagensteen, Owen H.	U. of Minn., M. B., 1921	429 Union St. S. E., Minneapolis
Wolfe, Howard H.	U. of Minn., M. B., 1921	1799 Lincoln Ave., St. Paul, Minn.
Waldschmidt, Reuben H.	U. of Minn., M. B., 1921	509 E. River Road, Minneapolis
Zeckwer, Isolde Therese	Woman's Med. Col., Pa., 1919, M. D.	Rochester, Minn.

THROUGH RECIPROCITY

Ahrens, Edward G.	Bennett, 1911, M. D.	Bellingham, Minn.
Anderson, Walter Thos.	Johns Hopkins, M. D., 1917	1038 Lowry Bldg., St. Paul, Minn.
Asbury, Eslie	U. of Cincinnati, M. D., 1920	Rochester, Minn.
Bowing, Irwin Ellis	Rush, M. D., 1921	1138 No. Leavitt St., Chicago, Ill.
Burns, John Gillett	Johns Hopkins, M. D., 1920	Rochester, Minn.
Carman, Russell Daniel	Marion Sims, M. D., 1901	Rochester, Minn.
Crawford, Albert S.	Cornell, M. D., 1915	Rochester, Minn.
Davis, Kenneth S.	U. of Nebraska, M. D., 1918	Rochester, Minn.
Freed, Cecil Forest	U. of Pa., M. D., 1920	Parkersburg, West Virginia
Goehring, Carl	U. of Mich., M. D., 1915	Rochester, Minn.
Herbst, Wm. Parker, Jr.	Georgetown, M. D., 1915	Rochester, Minn.
Jameson, Carol E.	Stanford U., M. D., 1921	Rochester, Minn.
Kent, Geo. Benjamin	Indiana Univ., M. D., 1916	Rochester, Minn.
Klaveness, Eivind	U. of Christiania, M.D., 1897	625 Palace Bldg., Minneapolis
Larson, Ernest Eric	Rush, M. D., 1920	Rochester, Minn.
Lyons, John Hugh	Geo. Wash. U., M. D., 1918	Rochester, Minn.
Lyons, Shirley C.	Tulane, M. D., 1919	Rochester, Minn.
Mahle, Arthur E.	Wash. U., M. D., 1918	Rochester, Minn.
Moran, Robert Emmet	Georgetown U., M. D., 1920	Rochester, Minn.
Seed, Lindon	Rush, M. D., 1921	Rochester, Minn.
Willy, Ralph G.	Rush, M. D., 1916	Kimball, S. D.

NATIONAL BOARD CREDENTIALS

Barrier, Chas. W., Jr.	Tulane, M. D., 1917	Rochester, Minn.
Finney, Wm. Parker, Jr.	Johns Hopkins, M. D., 1916	Rochester, Minn.
Heacock, Chas. Hunter	U. of Pa., M. D., 1917	Rochester, Minn.

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MANAGEMENT OF PROSTATIC OBSTRUCTION*

By H. B. Sweetser, M.D., F.A.C.S.
MINNEAPOLIS

The subject of prostatic hypertrophy with its resultant retention of urine, leading to renal inefficiency and an ultimate fatal termination, is well worth repeated review, for the reasons that it is a condition with which every medical man comes into contact, that it presents itself often as an urgent emergency fraught with disastrous possibilities, and that its successful management not only prolongs life, but, even better, makes what is left of life worth while. Enlarged prostate is one of the quite inevitable penalties of advancing age for the human male. It is estimated that one in five of all men over fifty years of age suffers more or less from this condition. In some the symptoms are mild and only slightly annoying; in others, they are so severe as to make the last years of life a tragedy, with suffering so intense that death is desired if relief cannot be otherwise obtained. The sequence of events is about as follows:

1. Retention may vary from a few ounces to enough to distend the bladder to above the umbilicus. In one of my patients, who was also a diabetic, we withdrew over sixty ounces, which he held with very little discomfort. Not infrequently there is the incontinence of retention which is likely to mislead the unwary.

2. The constantly distended bladder produces a back pressure on the kidneys, and these take on a diminished function with retention in the system of the products of metabolism, urea, uric acid, and creatinine.

3. When this occurs, uremia supervenes, and the health deteriorates.

4. Eventually acute retention occurs, and a catheter has to be resorted to for relief. This step very often heralds the rapid downward career of these old men. In passing, I would like to emphasize what we all know—namely, that a first-time catheterization ought to be considered a major operation; especially that an over-distended bladder should never be entirely emptied, since the resulting congestion may produce acute fatal suppression of renal function.

5. Even with the best technic, repeated catheterization is sure to result in infection of the bladder. The resulting cystitis adds immensely to the suffering, especially if the urine becomes ammoniacal and ropy, or if calculi form. In one of my patients, 82 years old, terrific spasms of pain occurred every 20 minutes, night and day, for a month before his operation, and they were not controlled by two grains of morphine hypodermically every three hours, and suppositories of five grains of opium five or six times in twenty-four hours.

6. Eventually death occurs from uremia or sepsis, or, in these days, from the result of operation undertaken for relief.

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*Presented before Minnesota Academy of Medicine February 8, 1922.

In every case the ultimate object of treatment is to remove the urinary obstruction, that is, the prostate, and to do this in such a way that the bladder may be left continent, that the intervals of urination may be long enough to allow the patient to follow his occupation by day and get sufficient sleep at night, that he may be returned to a condition of well-being such that he may enjoy life, and that this result may be arrived at without an excessive risk as regards mortality and morbidity. This is best accomplished, and possibly accomplished only, by removal of the prostate. But today we have become so accustomed to the operation of prostatectomy that we are liable to think of it as the sine qua non of treatment, and are apt to lose sight of the fact that the patient's condition is due to the retention of urine and the resultant damage to the renal function or to sepsis, and not by any means to the presence of the enlarged prostate. To make the removal of the prostate the first step in our treatment of prostatics is to court disaster. Yet, from my own experience and from my observation of the work of other men, I am sure that we all too often follow just such a plan. Without question, removal of the prostate will relieve the retention, but prostatectomy is, at the best, a very major operation, increasing in gravity in inverse proportion to the patient's condition; and it is unwise, to say the least, to subject a patient bordering on uremia from badly decompensated kidneys and with foul and septic urine, to so grave a procedure when much less hazardous methods will accomplish the same result. Once the retention is relieved, the kidneys, if not too seriously damaged, will resume their function, the uremia will abate, and then the prostate may be removed with comparative safety. From 25 per cent to 50 per cent of the deaths following prostatectomy are due to uremia,—in other words, to this extent we have failed properly to gauge the renal function.

Therefore, our sequence of procedure should be as follows:

1. Relief of retention.
2. Investigation and improvement of the renal function.
3. Elimination of the retained toxins.
4. Treatment of the septic bladder, and, finally,
5. Prostatectomy.

Whether we do or do not follow such a plan is apt to be reflected in our results. In no other way can we explain the astonishing variation in the statistics of different surgeons; some, the most expert, having only 3 or 4 per cent of deaths, while others have even as high as 50 per cent, the average mortality being about 10 per cent. If a patient with moderate retention and mild uremic symptoms is seen early very little preparatory treatment may be required to get him in shape for a safe prostatectomy; but the patient with great distension and foul urine, marked uremia, low kidney function, and high blood tension, with decompensated heart, requires a long preparation, even of many weeks, before he can be safely subjected to operation.

The first and most important step in the preparatory treatment is to overcome the urinary retention. Many patients lose their chance and are changed from fair risks to practically hopeless ones by misguided efforts to relieve acute retention. The keynotes of success are rigid asepsis and extreme gentleness. If a soft-rubber tube cannot be passed, then one with a coudé curve may be tried and is usually successful. If a metal catheter becomes necessary it should be used with the greatest delicacy, always remembering that the difficulty is not from constriction of the urethra, but from its tortuosity. Force with a rigid instrument is sure to cause laceration, false passages, and often deep and fatal infection. If catheterization is impossible it is far safer to tap the bladder from above.

When the bladder is overdistended, one should never be tempted entirely to empty it at one sitting. A soft catheter may be tied in and clamped, and a few ounces drawn off at intervals until the bladder is empty. As soon as the bladder is empty continuous drainage may be employed, either by a retained catheter in the urethra, which is feasible in the great majority of the cases, or through a suprapubic opening in the bladder, which is easily done under local anesthesia and with practically no shock.

Efficient renal function is of great importance as regards prognosis, and should always be determined. The phthalein (P. S. P.) test is the most reliable and simplest. An output below 30 per cent in the first hour indicates a poor risk, although Young considers a level output for several days, even of only 20 per cent in the first hour, comparatively safe. With an in-lying catheter, if the color appears within five minutes after an intravenous injection of phthalein, I have found the kidney function efficient and the patient a good risk.

Elimination of retained products of metabolism is best accomplished by the ingestion of large quantities of water and by catharsis.

The determination of the retained products of metabolism—that is, urea, uric acid and creatinin—is most efficiently gotten at by blood chemistry; and, if a physiological chemical laboratory is available, it ought always to be done in this way.

The septic bladder and cystitis are treated by continuous drainage and by irrigation with mild antiseptics and weak silver nitrate solutions, and possibly by the administration of hexamethylenamine. Stones, if causing much pain, may be taken away through a suprapubic opening, which is much safer than removal by the lithotrite.

For cardiac decompensation, rest in bed and digitalis are indicated. With such preparatory treatment, even apparently hopeless cases may be made safely operable, and in any event all the patients are made more comfortable. Age is not nearly so great a factor in gauging the risk of operation as is the condition of the patient. My successful cases varied in age from 56 years up to 82; my deaths from 66 years up to 84, and in these I am sure the determining factor was not the age.

The value of cystoscopy prior to operation has been overestimated. In the cases we were most anxious to know about the bleeding or purulent urine prevented a clear view, and we could see but little. On the other hand, it has the disadvantages that it is often painful or requires anesthesia; and, besides, it adds to the exhaustion of an already overtaxed patient.

Types of Operations.—Of the two avenues of approach the suprapubic is by far the most popular at present. Its advantages are (1) less chance of causing damage to the rectum, (2) less chance of causing incontinence, (3) requires less surgical skill.

Its disadvantages are (1) it is more difficult to control hemorrhage, (2) it allows of less efficient drainage, so there is greater liability to sepsis from infection of the prostatic cavity and the space of Retzius.

The perineal approach is strongly advocated by Young of Johns Hopkins and his followers. The advantages claimed are (1) less danger of hemorrhage and its easier control; (2) better drainage and so less liability to sepsis; (3) better conservation of the posterior urethral wall and the ejaculatory ducts.

But Squier claims equal safety for these structures with his suprapubic technic. The disadvantages are (1) more danger of injuring the rectum with the production of a permanent urethrorectal fistula, which is almost impossible to heal; (2) more liability to urinary incontinence; (3) less knowledge of the condition of the bladder and its contents (as, diverticula and calculi); (4) more anatomical knowledge and greater surgical skill required.

In the hands of experts both methods give about equally good results; but, in the hands of the average surgeon, I think the suprapubic approach will give, possibly, a larger mortality, but much better results as regards sequelæ. When one has once encountered the misfortune of having produced a urethrorectal fistula or a persistent incontinence of urine he is very liable to adopt a method of operating which will reduce to a minimum his chances of having a second similar experience. My first prostatectomy, done in 1901, was so brilliant in results that I approached my second one with no misgivings at all. However, I encountered much hemorrhage, lost my bearings, and evidently injured the rectum. On the fourth day the nurse gave a rectal feeding, and the hard-rubber nozzle penetrated the rectum. The resultant fistula persisted up to the time the patient passed from observation.

I then turned to the Goodfellow technic, which in a number of cases produced ideal results. It was done quickly, there was little shock, drainage was good, hemorrhage was easily controlled, and the patient was up quickly. But the opening in the urethra was low and eventually I cut the external sphincter and produced a persistent incontinence which was complete for awhile, but is still partial. A second patient was able to control his bladder when he was fresh in the morning, but about 5 P. M. he began to dribble and this continued through his sleep. I then switched to the suprapubic and have continued this and am satisfied.

Anesthesia.—For the general run of cases and for the general run of surgeons, the use of a general anesthesia will remain the best. If the kidney function is good, but the heart muscle impaired, ether is possibly the safest. If the kidney function is not so good, and there is retention of the products of metabolism, gas-oxygen is the anesthetic of choice. Under general anesthesia the surgeon can act with greater freedom and do more complete work. The time of general anesthesia may be materially shortened by opening the bladder under local anesthesia, with gas during the enucleation of the prostate. Spinal anesthesia gives ideal relaxation and would be the best of all if it were not for its possibilities of danger. I have used it with great satisfaction and without fatalities, but some of my patients have had later very intense pain in the head, and one of them very intense pain in the legs, which persisted for a long time. This, however, may have been due to the withdrawal of morphine.

Local anesthesia restricts the movements of the surgeon too much, and tends to cause incomplete surgery in the hands of one of average skill. If our anesthesia is not complete and we cause considerable pain, we are apt to do one of two things, —either be satisfied with an incomplete operation, which we later regret and which must be subsequently supplemented by a second, or we switch to a general anesthetic. The latter is by far preferable.

In any operation undue prolongation is likely to become disastrous, and this is especially so in prostatectomy which has to do with old men with poor vitality. One should, therefore, have a very clear picture of the anatomy, and a very thorough knowledge of the steps of the operation he has planned to do, so that he will make as few unnecessary moves as possible. Before the anesthesia is started, the bladder should be washed and filled with fluid, the field prepared and the drapes adjusted, and all necessary instruments provided for. If the risk is particularly bad, local anesthesia may be used to get into the bladder, which will shorten the time of general anesthesia.

Thoroughness in removal of all the obstructing tissue is very essential. Several times I have thought I had entirely enucleated all of the hypertrophied gland, but went back for a last careful investigation and was rewarded by finding extra larger or smaller adenomata. One case in particular I remember in which myself and assistants were all satisfied that we had a perfectly smooth, clean bed; the depth of the cavity did not, however, seem enough; I found a second line of cleavage and removed quite a large adenomatous mass occupying the apex deep in the urethra. It is stated that the so-called capsule is really a compressed circle of prostatic tissue, and that, following operation, this is liable to, and does, grow when the compression is released, and that this accounts for some of the failures to relieve the retention. This belief, of course, relieves our surgical consciences, but, personally, I have never experienced such a condition, and am of the impression that always there has been left behind, to explain the retention, some adenomatous tissue which should have been removed.

The surest and quickest means of arriving at the proper line of cleavage I have found to be the technic of Squiers, which he reported in 1911.

A cause of failure which I encountered in a recent case was neglect to remove a flap of redundant mucous membrane which fell over the internal meatus and caused obstruction. The patient was able to pass some urine when lying down, but not when sitting or standing up, and a persistent fistula remained. Some months later I removed this with a wedge of dense scar tissue from the posterior margin of the internal meatus with the result that voluntary urination returned and the fistula healed.

Perfect hemostasis is of great importance, for these old men do not stand the loss of blood well. Deaver, in his analysis of 2,500 cases, gives hemorrhage and shock as the cause of death in 30 per cent of the deaths. Various methods have been employed. With the patient in Trendelenburg position the field of operation is in plain sight and spurting vessels may be secured. For oozing the cavity may be packed with gauze and the end brought out through the drainage tube, or a Hagner bag may be used. I have been obliged to pack in only one case, although I feel that one of my deaths was really due to hemorrhage. I have not encountered secondary hemorrhage.

Drainage.—I have found Martin's drain the most satisfactory, inserted into the highest part of the bladder opening, as it keeps the patient dry. I remove it early, once after only thirty-six hours. I think it unsatisfactory to close the bladder completely and depend on the catheter drain. The catheter is liable to plug with clots, is painful, difficult to replace, and may cause epididymitis. It is unwise to pass a sound, as was the custom in the early days, and, further than that, it is unnecessary. In one of my early cases severe chills and high temperature followed the passage of a full-sized sound.

One should be careful to close the bladder wall tightly around the drainage tube to prevent leakage into the loose tissue in the space of Retzius; contrariwise, however, the skin should be only loosely sutured to allow the oozing to escape. If the space of Retzius is not extensively opened it need not be drained. Tap water is put in the rectum or hypodermoclysis employed. The patient is encouraged to move in bed and is gotten up at the earliest possible moment.

I have been led to a consideration of this subject because of my astonishment at the repeated recent reports of the high mortality attendant on the removal of the prostate. I had rather gotten the idea, from the published reports of the leading urologists, that the mortality approached somewhere about 5 per cent, and that this was true for the average surgeon as well as for the specialist. If the best surgeons can show a death-rate of only 2 or 3 or 4 per cent, a death-rate of 30 per cent to 50 per cent (as reported by one author) seems hardly justifiable. Such a death-rate ought to cause one to either reform his methods or retire from the field. Poor results come (1) from neglect of pre-operative preparatory treatment, and (2) from lack of proper skill; only to a minor degree does it come from the patient himself.

CONCLUSIONS

It seems to me that the important lessons we may learn from a study of disastrous results following prostatectomy are that the removal of the prostate ought to be the last step of the treatment and not the first as is so often the case; and that the pre-operative preparation is far and away the most important.

DISCUSSION

Dr. W. A. Dennis (St. Paul): I think we will all agree with what Dr. Sweetser has said in regard to preliminary preparation. It is very necessary to prevent mortality.

One point I want to bring up is the question as to whether we shall leave the catheter in after operation. It has always seemed to me that it was a good plan because the prostatic urethra is very much larger at the time of operation. and I make a practice of leaving it in in my cases. I had one case recently in which I did not do it. Later, I thought it would be wise to pass a catheter and could not do it. Then I tried a sound and could not get that through except by force. I then passed a larger sound. The only explanation that I can see for this is that the prostatic urethra healed in. I should like to hear from some other members as to whether it is a good plan to leave the catheter in. I can understand how it may tend to localize the infection.

I am surprised to hear that Dr. Sweetser has had to pack only one case to check bleeding. It seems to me that the best method for holding the packing in place is to use a stiff tube. I was in Mankato recently and asked Dr. Holbrook about this. He told me he made it a practice to pass a catheter and attach another tube to it. This gave him an opportunity to irrigate either way, and it seemed to me a pretty good plan.

Dr. R. E. Farr (Minneapolis): I have developed a few points which I stand by in handling this class of cases. I have not had a great many of them. Getting the patient into the proper condition is the most important point I think all will agree. I have had one man of 82 and one of 87, and both recovered. The main point I wish to discuss relates to the anesthesia, and I wish to take issue with Dr. Sweetser when he states that complete anesthesia cannot be obtained when local is used. To my mind this question permits of no argument now, for perfect anesthesia can be established if the proper technic is used. In fifteen cases we have had 100 per cent anesthesia in every case. Four ounces of one-half of 1 per cent procain in the caudal canal and a perfect infiltration of the abdominal wall will give perfect anesthesia in practically 100 per cent of cases.

The acidosis question must be reckoned with in these cases, and it is pretty definitely proven that novocain reduces the alkaline reserve less than any other anesthetic.

I would also like to mention a few points in technic. First, air dilatation of the bladder. We empty the bladder before making a cystostomy, leaving the catheter in situ and attach to it a rubber tube and bulb. The bulb is allowed to lie between the patient's feet When the space of Retzius is exposed the bladder is dilated with air, and when the bladder is opened the patient is not deluged with water. We depend upon gravity for dilatation of the bladder after it is opened. The prostatic retractor is introduced from above, and the rectal finger is unnecessary. It is surprising to what extent the prostate can be mobilized above the abdominal wall before beginning its removal. Dissection may be made directly under the eye, as one would dissect tuberculous glands of the neck. We use the urethral catheter after operation only in cases that have used the in-lying catheter before operation, as we fear that it will cause infection unless the patient is accustomed to it.

Referring once more to the kind of anesthesia; I wish to say that, although local anesthesia may not be the anesthesia of choice, it cannot be condemned upon the ground that good anesthesia cannot be established.

I would like to ask concerning Dr. Sweetser's experience regarding the accidental opening of the peritoneum.

Dr. F. R. Wright (Minneapolis): The subject on which Dr. Sweetser has written is one that a man could talk about for three hours. I want to mention a few points. One is the amount of residual urine. Three ounces may back up into the kidney and a man get constitutional symptoms. One man had a cystitis in which morphine could not control the pain. In certain cases of cystitis morphine aggravates the condition and does not control it. but produces tenesmus. I have always thought that the cystoscope was a dangerous diagnostic instrument to use on an old man. When you try to put a straight instrument through a urethra already curved you do more harm than it is possible to do good I also had one patient who was catheterized three or four times and died from it.

Answering his reference to Dr. Young's statement that the ejaculatory duct is not injured so much by suprapubic as by perineal operation, I would say that the ejaculatory duct is never involved. Many men forget that enucleation of the prostate is a dissection.

Regarding the use of anesthesia: I would say that for a long time I used spinal anesthesia and used it very successfully, but gave it up promptly when we disovered that patients were not properly prepared before. If the bladder is drained before, we have no trouble with anesthesia.

Regarding packing: The packing should be left in the wound. If it is once put in it should not be taken out, but should be allowed to come out itself down into the bladder. I have seen death follow removal of packing. By doing this and taking the tube out in five days the gauze will be found loose in the bladder. The danger from sepsis is very greatly overestimated. The tubes should be put in tightly to keep the bed dry and should be left in for five days. If the drainage tube is loose the bed is wet and the patient uncomfortable. If it is too tight and there is pressure necrosis on the bladder, you get a wound which heals slowly. The doctor speaks of the healing of the wound. When we enucleate the tumor the sheath will contract, and after healing it will cover with granulation tissue. I think it is unheard of that the walls of the posterior urethra ever unite so do not think it necessary to put in permanent drainage to prevent the urethra from healing.

Dr. H. P. Ritchie, (St. Paul): I think our very great satisfaction in this work has been the selection of the two-stage plan. I am familiar with all the arguments, pro and con, and clinically I know of Dr. Wright's work at the University and have seen his satisfactory results by the use of the interrupted catheterization. I find in our own private work that this preparation very often causes a great deal of distress to the patients. Since we have been doing the two-stage operation we have lost but one patient from uremia. In acute retention with bladder distended to fullness, we have often made a plan of doing the work in three stages, by first instituting suprapubic catheter drainage by means of a trocar, and then the preliminary wound in preparation for the removal of the gland at the third operation. The first two procedures are done under local anesthesia, are of little consequence, give great relief, and, I believe, have a mental effect in giving confidence to the patient for the real operation. At the preliminary opening the peritoneum can be easily misplaced and the dome of the bladder inclined to the front wall, thus minimizing the danger of dissecting the bladder in all directions during the later enucleation of the prostate. It is not always necessary to pack, but, if there is any question, we use the gauze. I was very glad to hear that Dr. Wright says not to take out the packing too early. We have delayed its removal, maybe, sometimes too long. I think the urethral catheter is necessary as it guides the healing. The point is that this catheter must be well into the bladder beyond the prostatic wound. I think that doing the operation in two stages and treating these patients gently have revolutionized our mortality statistics, and it will take a lot of argument to make us change.

Dr. A. Schwyzer, (St. Paul): First of all, I agree with Dr. Farr that Dr. Sweetser's paper is full of very good judgment and common sense. I think there is not a single thing he said that one could in fairness greatly disagree with. As to the anesthesia: Dr. Farr gave his views that the local anesthetic is the one. However, he combines it with sacral anesthesia. I am very much in favor of local anesthesia. In the last three and one-half weeks we have had three cases (one malignant papilloma of the bladder and two of the prostate) and used local anesthesia. Dr. Farr says he injects four ounces into the sacral canal. We used only the local anesthesia. It is really remarkable how nicely one can inject around the prostate. We gave one patient about a tablespoonful of ether, more to give him something to think about, but it seems to me that the one spoonful of ether would be preferable to four ounces of an anesthetic in the sacral canal.

Now, as to the handling of the case afterwards: When there is not any oozing to speak of we do not use any packing. We just put in a tube and sew the bladder around the tube, and then the tube is removed in two to four days and a catheter inserted through the wound for a few days. One of these patients began to urinate after forty-eight hours, and one of the others after about four days, though they were still draining suprapubically. I think it should not be necessary to wait five days for the removal of the tube in a stereotype manner.

Dr. Ritchie: I might qualify my statement about the gauze. I felt that it should not all be removed at once. One might begin removing it on the second day. It is removed gradually rather than make a separate and complete procedure out of it.

Dr. Wright: Regarding the use of local anesthesia: There is no reason why you cannot anesthetize the bladder.

Regarding the packing; I leave the packing in on the same principles that we pack a wound on the surface. We would wait until granulation tissue had formed and it would come out without force. Hemorrhage comes from the vein, and if we dislodge the clot we start hemorrhage again.

Dr. A. E. Benjamin, (Minneapolis): This has been a very interesting subject. There has been more disagreement about these cases than about any other. Decompression of the kidney by the catheter has given me better results, I think, than the two-stage operation. We leave the catheter in for several hours at a time several days beforehand to get the patients used to it. We use local and gas analgesia. Bleeding is checked by suture, as a rule. It obviates the necessity of packing. The catheter is left in afterwards. A suprapubic incision is made, and a double tube, one within the other, is placed in the incision. A suture is passed through the inner end of the catheter and brought out between the two tubes and anchored to a cross-piece over the short outer tube. It is not uncomfortable and is a much better way than the old method. It also gives a chance to irrigate the bladder. I have followed this method for the last four years.

Dr. A. R. Colvin (St. Paul): Regarding the two-stage operation: It is undoubtedly wise if the patient is suffering from the effects of retention to drain his bladder first, and later remove his prostate. However, not every man who requires prostatic operation is suffering from toxemia or cystitis, and in cases not presenting these features I see no necessity for a two-stage operation.

Regarding the selection of operative cases: Not every man with his first attack of obstruction requires the removal of his prostate. A temporary obstruction may be due to congestion and edema of the mucous membrane of the prostatic urethra. If this is relieved by appropriate treatment, the obstruction is relieved, and no more trouble may be experienced for several years. If the subject is comparatively young, postponement of the operation is quite safe. If the subject is over seventy, a year's relief may be all that his life requires. Apart from the danger of hemorrhage or the danger of operating upon debilitated subjects, there is that rather indefinable danger in genito-urinary operations, perhaps expressed best in terms of "suppression of urine," which is ever a menace in old and young.

The question of packing the wound at the bottom of the bladder: It is my feeling that the packing is efficient just as long as one holds it in place. If, after a few minutes' pressure, bleeding is still active, the bleeding point should be sought for and controlled by a ligature or suture.

Dr. L. C. Bacon (St. Paul): The matter of oozing seems to take up much attention. I have given up the use of gauze and have found the Pilcher bag very satisfactory. Sufficient retraction can be made upon the catheter to take care of the oozing very readily, and the urethral canal is kept open. I have been using that for several years entirely in place of packing.

Dr. Sweetser (closing the discussion): I wish to thank the members for their very general and free discussion. What I have tried to emphasize particularly is the necessity for preparatory pre-operative treatment if the best results and a low mortality are to be obtained. If the patient is brought to the operating table as a safe risk, the details of the operation are not so important, provided ordinary skill is used.

I shall comment on only a few of the points brought up in closing. First, about the use of the in-lying catheter. If it is used as the sole source of drainage the suprapubic wound being closed without a drain, then I think it is not efficient and should not be relied on. If the bladder is also drained through the suprapubic wound, then I think the catheter is unnecessary and may give rise to epididymitis. Stricture does not occur, and, if the patient is to recover the ability to urinate, he will do so whether or not a catheter is left in.

Dr. Wright said he had a patient who died from uremia just from passing a catheter. If such a trivial procedure may end so disastrously, how much more certain would be the fatality if a prostatectomy were attempted? Such cases prove the necessity for preparatory care to improve the renal function and eliminate the retained toxic products of metabolism.

Concerning the preservation of the ejaculatory ducts: I do not think we need worry, for these old men have usually outlived their procreative period; they may be sterile, but not necessarily impotent.

Regarding the drainage tube: The shorter its stay the quicker the fistulous tract will heal. When hemorrhage has stopped and granulation tissue has formed, it ought to be removed; forty-eight to sixty hours should be sufficient, and then the patient may get out of bed.

The question of anesthesia is very important. What I have said about local anesthesia does not apply to experts like Dr. Farr, but to the average man as we see it administered in our visits to the various clinics throughout the country. Further than this, general anesthesia, especially gas-oxygen, produces so little increased danger that I doubt if better results can be shown by even the most skilfully administered local anesthesia. As I have said in my paper, the operation is more likely to be thorough under general than under local, for, as Dr. Schwyzer says, even if the patient does not suffer pain, he gets restless if the operation is unduly prolonged, and this may cause the surgeon to quit before he has finished.

It was very interesting to note that everyone who discussed the paper employs the suprapubic method. Ten years ago there would have been no such unanimity. There is no question but that the perineal route requires more accurate anatomical knowledge and greater technical skill, and even with these the disastrous sequelæ of fistula and incontinence may not be with certainty avoided.

I have not often found the two-stage operation necessary, and surely not the sine qua non claimed for it. If an in-lying catheter is tolerated—and it most often is—the patient can be brought into condition for a safe one-stage operation.

Accidental opening of the peritoneum is only dangerous when not recognized till after the bladder has been opened and the peritoneal cavity exposed to contamination. This may happen if the opening into the peritoneum is very small; but, if its possibility is kept in mind and care exercised, the accident ought to be discovered and repaired before the bladder is opened.

Dr. Colvin mentioned that in a first retention where the urine is normal he feels it is safe to go ahead and operate. I would agree with him if he finds the renal function good. He also says that normal urination may be regained following catheterization and that in such cases prostatectomy is not necessary. With this I cannot agree, as I think it is not possible to completely empty the bladder when the prostate is enlarged. If a sagittal section is made through such a bladder it will be found that the meatus internus is high, forming a cul-de-sac behind and below it. Even with considerable retention, many of these old men will go along and say they have no difficulty in urinating except that they are passing water too frequently. If a catheter is passed, however, there will be found retention, often of many ounces. This is the thing that is liable to trip us.

Regarding hemostasis: The Pilcher bag is good, but the difficulty is that you may not have it when needed, and even when you do have it it may be defective and fall apart. Gauze tape is always available and is efficient. With the bladder widely open and the patient in Trendelenburg position the operative field is easily visualized and hemorrhage may be controlled. It is wise to be sure of your hemostasis before you dismiss the patient from the operating-room.

TRADITIONS AND IDEALS OF OUR PROFESSION*

By George Douglas Head, M. D.

MINNEAPOLIS

Words inadequately express my feeling of appreciation as I turn to the time-honored custom of the presidential address. To have received from this Society the honor of acting as its president during the past year should carry with it something more than the mere bearing of its executive burdens. It should signify a vote of confidence in a man's honesty, his professional integrity, his treatment of his fellows, the approval of the ideals for which he stands. Perhaps I have dignified the office beyond its real significance; but the long list of honored names upon the presidential roll bears out this interpretation of its high character.

Under the spell of the hour, one's attention is naturally focused upon those factors of vital importance to the highest interests of our profession—upon the traditions which, from the days of Hippocrates and Galen, have served as the foundation stones upon which medical practice rests; the ethical principles which experience has established as the code of procedure; and the lofty ideals formulated by the fathers, which have served as the inspiration for our work.

The instability of the present social order makes it most important that we physicians see with a clear vision and hold our course uninfluenced by the iconoclastic tendencies of our time. Retrospection has a steadying effect. It is well at times to dig away the accumulated rubbish and examine the underlying structure. Deviations from the path of correct ethical conduct and sound scientific procedure are more apparent viewed from the vantage ground of experience and long observation. Then, too, the "furious masters," as Plato calls them, of a man's earlier years play a minor part in the vision disclosed to his view.

It has been said that middle age is the deathbed of idealism. If this be true, I have made a poor choice in my subject. I am forcibly reminded, however, that the oldest doctor among us was once a young man and that the most vivid and lasting impressions of professional life cluster about those student days when in the wards, the lecture rooms, and the laboratories, a man works shoulder to shoulder with physicians of mature years and high character, and from them receives his inspiration and example. We are members of a guild with standards of practice upon a different plane from those obtaining in the business world. As a profession we have turned our faces against material success as an index of professional attainment. In spite of the pressure exerted upon her, medicine has thus far steadfastly refused to sacrifice her sacred mission upon a cross of gold.

The great company of young men and women following on, fired with scientific and humanitarian enthusiasm, must look for help and guidance to those of us who first as raw recruits and now as veterans trudge the hills and valleys of the road. It is with a keen sense of my own unworthiness and the free acknowledgment of many sins of omission and commission that I venture to discuss the subject.

MEDICINE AS AN ART

Less than a century ago all physicians, with few exceptions, were practitioners and came in close contact with the sick. To-day an increasing number become teachers, investigators, hygienists, public health officials, and social service workers. We rejoice that this is so because it clearly indicates the trend of our efforts toward the goal of preventive medicine. However, the lives of most of these physicians are spent in the laboratory and the administrative office, out of intimate contact with sick men and women. Those qualities of heart and mind so essential for the care of the sick are not, therefore, required or developed. Medical men become more scientific, but less human. The patient is looked upon as a case, the atmosphere of the sick-room is filled with scientific discussions, complicated apparatus is dragged in on all occasions, nurses are kept busy with elaborate charts, the methods of the laboratory dominate the atmosphere. With the rise of medicine as a science, the art of practice as a precious tradition is being neglected. Men and women cannot be treated as test-tubes or retorts. While their life processes may rest upon chemical laws, there is vastly more to be considered than the cold scientific chemical, serological, or bacteriological reactions going on in the diseased body.

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*Presidential Address presented before the Hennepin County Medical Society, January 3, 1922.

More men fail in the practice of medicine from their inability to understand people than from ignorance of disease. Graves states this fact most pointedly when he says: "Bear in mind, gentlemen, that when you come to treat disease you approach the bedside as physicians and surgeons and not as chemists or botanists or anatomists." Now, what do we mean by medicine as an art? Holt has well defined it: "Medicine as a science has to do with disease, medicine as an art has to do with the sick man or woman."

The science of medicine we learn from books, from lectures, from laboratories, and the post-mortem room. The art of medicine is acquired as students from contact with practitioners of medicine, studying their ways of managing the sick, observing their manners in the sick-room, their tact in meeting the emergencies, the confidence they inspire by words of cheer and hope, and, as practitioners, by years of experience in the care of the sick. Rare judgment and self-control are required to know a thousand secrets and never by word or look betray those confidences, even to one's wife. The cold, austere man, be he ever so scientific, has no warm welcome in the sick-room. The patient's face never brightens up at his approach. Men and women are human beings. They want physical and—I was going to say—spiritual support, and they want it, not from the clergyman, who knows little of their aches and pains, but from the doctor, who spends his life among the sick and suffering. The modern tendency of the profession to ignore the humanities violates one of the oldest traditions. To quote from the old code: "A physician should not only be ever ready to obey calls of the sick, but his mind ought to be imbued with the greatness of his mission and the responsibilities he habitually incurs in its discharge. These obligations are the more deep and enduring because there is no tribunal other than his own conscience to adjudge penalties for carelessness or neglect. They should study also in their deportment so to unite tenderness with firmness, condescension with authority as to inspire the minds of their patients with gratitude, respect, and confidence." Alas! oftentimes too late, many of us learn to appreciate in our work the value of self-control, tact, sympathy, discretion of speech, and those other qualities which form the structure upon which the practice of medicine as an art rests.

The glory of our profession has been its deep concern for the physical betterment, not only of mankind, but of men. The philosophy of the Greek submerged the man in the large interests of the state. The priest places the welfare of the church above that of the communicant. In the eyes of the scientific evolutionist, the state supplants the interest of the citizen. But the physician ministers, not only to humanity at large, but to man himself. The humblest of us, therefore, is not a drudge. Our humanitarian ideals place the victory cross upon him who has preserved the traditions of service.

THE TRADITION OF FRATERNALISM

Our profession is a guild, a sort of brotherhood the civilized world over. A bond of sympathy, a spirit of scientific unity binds us together. This old tradition is beautifully expressed in the Hippocratic oath: "To reckon him who taught me this art equally dear to me as my parents; to share my substance with him and relieve his necessities if required; to regard his offspring as on the same footing with my own brothers and to teach them this art, if they should wish to learn it, without fee or stipulation. I will impart a knowledge of the art to my own sons and to those of my teachers and to disciples bound by a stipulation and oath according to the law of medicine, but to none others."

It is food for deep reflection that this spirit, at times so beautifully exhibited in our scientific gatherings and in case of sickness in the families of physicians, should seem at times entirely lost in the work of physicians in their relations to each other. I am ashamed to say it, but this feeling of rivalry and jealousy among us often predominates over every other sentiment. The reputation of colleagues is often injured and undermined by thoughtless, unkindly criticism. Petty jealousies creep in which little become men who are so worthy of finer feelings toward each other. The very personal character of our work and the isolated life which many of us lead, away from the broadening influence of contact with our fellows is doubtless in part responsible for it. It is an enigma, a flaw in the diamond. The spirit of jealousy and intolerance of our brethren in the profession weakens lamentably our influence. The public, rightfully, has no patience with us whenever this spirit crops out. We are all made of larger mould. Men whose acts in all other respects are guided by the highest motives should not permit themselves to be degraded in the eyes of the outside world by so narrow a vision of professional relations with each other. A generous spirit begets generosity. The man who is ever watchful of his rights, fearful that they may be encroached upon, fails to live up to this noble tradition of fraternalism. Men of our broad intellectual training should cultivate a liberal attitude toward their fellows. This spirit can be best fostered by the older men. They are in a position, both in regard to professional standing and assured income, to act generously toward the younger men who are struggling to establish themselves. A kindly, sympathetic act, once performed in the name of Æsculapius, kindles a feeling of respect, admiration, and love in the profession. Much can be done to perpetuate this old tradition by frequent meetings, such as this, for social and scientific purposes. By getting together we learn to know each other, explain away the differences, if there are any, between us, and find out what a good fellow the other man really is. It is astonishing how quickly an apparently serious misunderstanding will melt away if medical men will only meet on common ground.

THE IDEALS OF SCIENTIFIC INQUIRY

Originating out of humble beginnings nourished by susperstition, for centuries long an integral part of theology and witchcraft, medicine has blossomed forth and taken its place among the sister sciences of the earth. How slow and painful has been the process of this evolution! Our profession makes greater demands on us than merely ministering to the ills of mankind. The lawyer has not fulfilled his whole duty to the state when he protects the interests of his client. He should sacrifice some of his energy in an effort to promote justice and good-will among his fellow men. The clergyman ministers to the spiritual welfare of his parishioners, but his profession requires that he give generously of his time and strength in movements for the moral uplift of the race. The teacher not only imparts knowledge, but inspires the mind of his pupil with a longing to delve deeper into the sources of truth.

The profession to which we belong, old as the pyramids, would to-day be only an historic memory were it not for the tradition, handed down from generation to generation, which urges us to search out new truth and add to the knowledge already disclosed by the sacrificing efforts of those who have gone on before, done in an heroic, self-sacrificing spirit, without hope of material reward, a service to mankind for the love of man. With the lives of Beaumont, Holmes, Lazear, Reed, Carroll, Trudeau, Osler, and many others in American medicine before us, what more inspiring examples could be created to urge us each to contribute something to the glory of truth?

In the search for knowledge much of the effort has centered in our medical schools, and in endowed institutions created for this purpose. This is as it should be since these institutions provide the inspiration for research. No good reason exists, however, why medical men outside the universities should fold their hands in a lazy attitude of complacent expectation awaiting the announcement of the next medical discovery. The history of research clearly indicates that not all the keen seeing eyes or reasoning brains are confined within the faculties of medicine. Had Robert Koch, as a general practitioner in a little mining town of Klausthal, been content to sit idly by, waiting the research efforts of the great professors at the Royal Institute of Berlin, the tubercle bacillus might never have been discovered. Had Sir James MacKenzie been content to stifle his power of observation in the routine work of his general practice, much of the valuable knowledge he has given to our conception of heart disease might never have been revealed.

There is not a man within the sound of my voice who cannot, if he will, add something of value to the medical knowledge of our day. A carefully reported case, with autopsy findings, is a real contribution to medical knowledge. It is the general practitioner who sees disease in its early stages, follows it through its course, and is often the only man at the autopsy table who has a clear clinical picture of the malady. His observation of facts accurately made and recorded form the chief framework upon which our clinical conceptions of disease rest. The spirit of inquiry and of research lights the fires of a man's professional career, keeps his mind in a plastic, receptive state, and opens to his mind new vistas of truth.

IDEALS OF PUBLIC SERVICE

A medical man has not fulfilled his whole duty until there has opened up to him the vision of service which he owes to his community and the state. Alas! I fear that the specialization of public health work in the profession has led many of us to neglect this service. In our "Principles of Ethics" we read: "Physicians, as good citizens and because their professional training especially qualifies them to render this service, should give advice concerning the public health of the community. They should bear their full part in enforcing its laws and sustaining the institutions that advance the interests of humanity. They should coöperate especially with the proper authorities in the administration of sanitary laws and regulations. They should be ready to counsel the public on subjects relating to sanitary police, public hygiene, and legal medicine." "When an epidemic prevails, a physician must continue his labors for the alleviation of suffering people, without regard to the risk to his own health or life or to financial returns."

The public at large is taking an ever-increasing interest in public health measures and disease-prevention. The war has served to focus the attention of individuals upon the value of intelligent medical skill and advice. While the physician holds his place as the medical advisor of the sick man or woman, he has failed to assume the position of leadership in public health which his knowledge and training entitle him to fill. As a result, considerable of the effort put forth by lay agencies in the interests of public health is misdirected or ill-advised and often ends in the unnecessary or useless expenditure of public money. While medical men may not by training or experience be fitted to fill positions of leadership in the administrative work of public health agencies, these efforts sadly need the wise counsel which physicians who are thoroughtly trained in the knowledge of disease, its modes of transmission, and the effective methods of prevention can give. Instead of lagging behind in this great movement for the physical betterment of the race, we should as individuals and as a profession take up that part of the work which we are best fitted to perform with enthusiasm and vigor.

Upon all questions of local public health our opinions should be openly and frankly expressed, whether asked for or not. This Society, through a strong advisory committee, should to-day be giving advice to the City Council, the School Board, the Park Board, and all other agencies dealing with the health of the people. Our judgment should be expressed in a dignified way upon all matters pertaining to the public health of the state and guide all attempts at public health legislation, whether state or national. A standing committee composed of the best brains the Society possesses should be established for this purpose.

MEDICINE A PROFESSION NOT A BUSINESS

In the opening chapter of the "Principles of Medical Ethics," formulated for our guidance, are these words: "A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration." Have you ever stopped to reflect upon the significance of this professional spirit in which we are called upon to work. Emmet Holt has truthfully said, "There is no antidote for commercialism like the love of science." When Napoleon III asked Pasteur why he had not turned his discoveries to a source of profit to himself, he replied, "In France a scientist considers that he has lowered himself by so doing." "A man of science would complicate his life and risk paralyzing his inventive faculties if he were to make money out of his discoveries." Louis Pasteur was a chemist, not a physician. His investigations dealt with biochemical reactions and the laws governing the growth and development in low forms of vegetable life. Should men who deal with the lives of little children, mothers with babes in their arms, fathers of families, and the lives of young men and women upon whom the strength of the race depends, have less exalted views of their duty to society and to their work?

There are different methods by which this splendid ideal can be undermined. Intelligent advertising is the secret of success in the modern business world. Our traditions against its use are established upon the solid ground that reputation and success should come through the avenues of knowledge acquired by years of study and wide experience, secured by painstaking observation and practice. The rewards of advertising, therefore, are doubly advantageous to the man who with a loose conscience does not play the game squarely. He does not wish to be known as an advertising quack, but adopts other devices. He advertises himself to his friends by reciting marvelous cases cured by medical treatment. He cultivates the acquaintanceship of newspaper editors and reporters, is interviewed with relation to disease epidemics, and his published opinion quoted with his name in the public press. His name appears in print credited with remarkable surgical operations. His research work (?) is first announced in the public press. Perhaps his name may be attached to some new remedy exploited by pharmaceutical concerns. Great institutions of learning may patent the results of his scientific labors with a certain percentage of the earnings from the sale of the product going to this man of science.

It is not necessary to give further citations. You all know what I mean. Shame upon us if the least among us shall fail to emulate the noble examples of those who have sanctified the pages of our history with their self-sacrificing efforts in the interests of all mankind.

Let me read again from our code: "Solicitation of patients by circulars or advertisements or by personal interviews or by communications not warranted by personal relations is unprofessional. It is equally unprofessional to procure patients by indirection through solicitors or agents of any kind, or by indirect advertisement, or by furnishing or inspiring newspaper or magazine comments concerning cases in which the physician has been or is concerned." "It is unprofessional to receive remuneration from patents for surgical instruments or medicines, to accept rebates on prescriptions or surgical appliances or perquisites from attendants who aid in the care of patients. It is unprofessional to employ any methods to gain the attention of the public for the purpose of obtaining patients." "Self-laudations defy the traditions and lower the tone of any profession and so are intolerable."

The law of our profession tallies with that of the moral universe. It is the law of compensation. As we sow, so shall we reap. There are no short cuts to knowledge. Wide experience is not acquired for the asking. An enduring reputation is not attained by newspaper publicity. Lowell has beautifully expressed it: "God's price is high, but what He sells wears long."

In casting about for a solution of this difficulty, I would suggest that this Society establish a standing committee on publicity, whose duty it shall be to confer with newspaper editors and formulate a plan for the safeguarding of the profession's interests, inform the public through properly prepared statements to the press of the ethical standards established by the profession concerning advertising, and formulate statements for the education of the public in medical knowledge. When laymen once understand our rules of conduct and the reasons for them, much of present advantage gained by this form of self-laudation will be lost to those who may be tempted to utilize it for personal aggrandizement.

The physician who allows his mind to be actuated by financial rewards falls into another temptation, namely, allowing his professional judgment to be warped by monetary considerations. This is an insidious influence which everyone of us must at times combat. A well-to-do patient seeks advice. It may be a medical case which really does not require hospital care and daily observation, and yet the patient is ordered into the hospital. Or the case may be of a surgical nature; and, while an operation is not strictly necessary, the surgeon says to himself. "I may find something more than seems apparent. The patient is able to pay. I will advise an exploration." A decision of this character made in the first instance comes much easier in the second, and so on until it becomes a professional habit. Such a temptation comes with increasing force to those of us who are in financial need. What technical skill can ever take the place of honesty or high moral character in a physician or surgeon? I feel sure that few of us have sinned in this respect against the high traditions of our profession. When such a temptation comes, is it not well to remember that if we give way we are not only injuring our moral selves but placing a stain upon the reputation of a profession, the pages of whose historical records teem with noble acts of heroic self-sacrifice and devotion to the highest type of professional duty?

There is still another commercial aspect to our professional work to which I wish to again call your attention, namely, the man who treats his patients as chattels to be bargained about at his own bidding to him who will pay a commission. He forgets, first, that the patient is his only if he treats that patient according to the rules handed down in the traditions of our profession, namely, the highest type of service of which he is capable,—and, if a consultant is needed, calls the best man available for that service. Splitting of fees puts a high and noble professional work on a business basis. The specialist who divides the fee gets the work. Skill and professional attainment are often relegated to second place. Then again the consultant turns over to the man referring the patient, money which he often has not earned and deprives himself of remuneration that he has earned. It offers a temptation to the consultant to load up his fee in order to meet the payments which he knows must go to his confrere, thus doing an injustice to the patient. The practice carried on between partners who know they are violating a professional tradition tends to demoralize their high sense of honor and produces a deterioration of moral character intolerable in men dealing with sick and suffering humanity. To the honor of the profession it can be truthfully said that the practice has received its death blow, but it is not by any means eliminated.

There is still another influence at work which may further serve to place medicine upon a business basis, namely, contract practice with business firms to deliver a given amount of medical service at a fixed fee. Such practice work has thus far largely been confined to emergency surgery and lodge practice. With the wider socialization of medicine, opportunity arises to extend such service to include the diagnostic clinic, obstetrics, and pediatrics, and, perhaps, the other specialties. The higher interests of the profession merit our condemnation of contract practice for the reason that, dealing as we must with business concerns, who are desirous of securing good service at a low cost, the work will go in all probability, to the man who bids the lowest for it, rather than to the most skillful and efficient. A commercial basis, therefore, will be established in which physicians will be called upon to compete for practice.

The commercial spirit of our time has already shaken to the foundation this professional ideal of ours. Are we going to sit supinely by and let the sharp practices of a few sweep away the standards and put the stamp of commercialism upon our work? It is most important for the older practitioners among us to set an example free from the appearance of evil. The young man in medicine should start out his professional career with one object in view,—to serve his fellowmen. The moment he places his own interests above those of his patients he has yielded to a temptation which violates one of the most precious of our traditions. It is unreasonable to expect that the poor mortal clay of which we doctors are made should not in some instance give way to the materialistic tendencies of our time.

But give a man an exalted work, where every demand made upon him calls out the best attributes of his nature, the high place he is forced to occupy often dignifies and purifies his soul and spirit. It should be so in medicine. It is so in medicine. Let me read again from the "Principles of Ethics": "The most worthy and effective advertisement possible, even for a young physician, is the establishment of a well merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of character and conduct."

No one of us ever starts his professional career perfect in conduct or practice. Professional like moral character of a high order is moulded slowly. Repeated failures and violations of the laws of conscience beget disgust at one's own weaknesses. The man fails, tries again, fails and tries again. Long and persistent effort, fortified by a good environment, the example of his fellows, and a keen sense of right, instilled by the teachings of a devout mother, finally develop character of a high order. It is a painful road to travel. The frailities of human nature beset us on every hand, our standards are so high measured by the commonly accepted yard-stick of human affairs. One deals not only with the weaknesses of his own nature, but also with patients who cannot understand and often with a confrere weak and human like himself. Our relations with the sick are so vital, so personal. We could get on better too if someone would only provide us a sure living. If we only did not become so interested in the men, women, and children whom we watch over. They seem to become a part of our lives. The loss of a patient to a fellow physician cuts to the quick, not because of the economic loss, but because it expresses the patient's lack of confidence in us or forcibly reminds one of his failure to meet the demands made upon him.

And so I have seen fit to call your attention to some of the guiding principles which govern the practice of medicine. Whatever time and experience have proven worthy let us cling to and perpetuate. Whatever savors of sharp practice or the disregard of the rights of our fellows in the profession, or tends to break down our traditions, let us cast aside. In an age which temporarily has lost its balance, let us with clear vision hold securely to the ideals and traditions handed down to us by men who have served humanity well. I cannot refrain from quoting the closing lines of Kipling's Recessional:

"Lord God of Hosts, be with us yet,
Lest we forget, lest we forget."

REPORT OF A CASE OF SUDDEN BLINDNESS, WITH OBSERVATIONS*

By H. J. G. Koobs, M.D.

Mitchell, South Dakota

On June 4, 1921, the patient, C. H., a ninth-grade schoolgirl, aged 15, presented herself for examination because the school nurse found some defect in her sight. The mother says the patient is healthy and perfectly normal in every way. The family and previous history is negative, except that the patient was quite sick with the measles three or four years ago. She has no knowledge when the defect in vision began or that it existed.

The external appearance of lids and eyes is negative. Vision of right eye is 20-20; of the left eye, 20-40. Tension, normal to the fingers. Trial lenses and retinoscope reveal no error of refraction. There is no improvement in vision of the left eye with lenses. The ophthalmoscope reveals fundus of right eye normal, but the effects of a chorioretinitis involving the maculopapular bundle, also a little floccular exudate over the nerve head in the left eye. Media are clear. Pupils react to light and accommodation. Form and color fields of both eyes are normal except for a rather large central scotoma with the left eye.

Intranasal inspection reveals no pathology except a little septal deviation to the right side and some congestion of mucous membrane. There is no interference with nasal respiration. Epipharynx shows moderate amount of adenoid tissue. Faucial tonsils, while not large, have large crypts and look diseased; pillars are reddened. Upper anterior cervical glands are palpable. Find two decayed teeth, one ulcerated.

Made a diagnosis of chorioretinitis of the left eye, presumably due to toxemia from focal infection. Advised tonsillectomy and referred to dentist.

June 13, 1921, the patient came in for tonsillectomy. The teeth have been put in good order.

Examination: Weight, 102 pounds. Pulse, 90 (is a little nervous). Temperature, 98.6°. Coagulation time of blood, four to five minutes. White cell count 7,500. Urinalysis, negative.

Performed tonsillectomy and adenoidectomy under a general anesthetic (ether). Tendency to bleed freely, all hemorrhage stopped before leaving the table. Recovery uneventful.

The patient came in for reexamination twice a week for four weeks, feeling fine. No change in vision or appearance of fundi from that before reported.

September 30, 1921, patient again came to office. Complains of shooting pains in and between the eyes, and says she has seen two spots before the left eye since yesterday. Also reports that all the other members of her family have had attacks of so-called "flu" during the past week.

Physical examination: Temperature, 101.6°. Pulse, 96; acts nervous. Has a little circumcorneal injection. Pupils react to light and accommodation; tension, normal; media, clear; left eye appearance of fundus as before. Right eye fundus, normal. Vision of right eye is 20-20; of left eye 20-40.

Diagnosis: systemic infection, probably influenzal.

Prescribed eliminative treatment, small doses of acetylsalicylic acid and gargle.

Reported to be feeling better next day and went to school.

October 13, 1921, patient comes to office, and complains of having had recurrent attacks of headache or rather pain in the eyes with disturbance of vision in both eyes. Pain lasts only five to ten minutes at a time, but is severe. Pulse and temperature, normal. Physical examination reveals nothing new. Blood specimen sent to laboratory for Wassermann. (This was later reported negative.) Prescribed mild eliminative treatment, small doses of acetylsalicylic acid for pain, and syrup FeI, two c.c., t. i. d. Ordered her kept out of school.

Next morning, October 14, she was brought in by her mother, being entirely blind in both eyes. The mother says the patient complained of being unable to see yesterday for a while right after leaving my office and of having had several attacks of blindness with intervals of ordinary vision during the evening. Slept well all night. Does not have much headache this morning. Pulse, 74; temperature, 98.6°. External appearance of eyes, normal; tension, normal; movements of eyeballs, normal. Has blind stare and presents every appearance of being absolutely blind. Pupils, equal, somewhat dilated, with reflex to light normal, direct and indirect. Media, clear; fundus of right eye, normal; of left eye, same as before. Intranasal inspection, negative. All other findings, negative. Called in consultation Dr. E. W. Jones, who also made a careful, complete physical examination, including blood, urine, and spinal fluid, with negative result. Skiagrams made. Anterioposterior and lateral do not show involvement of paranasal sinuses or enlargement of hypophysis cerebri.

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*Presented before the Sioux Valley Eye and Ear Academy at Sioux City, Iowa, January 24, 1922.

Did not make definite diagnosis as to cause of blindness. The patient was sent home, put to bed, and given active eliminative and diaphoretic treatment.

This occurred on the morning of the day I had to leave for Philadelphia to be in attendance at the American Academy meeting, so I left the patient in charge of confrére. After listening in Philadelphia to a paper by Dr. King, of New York, on "Blindness Resulting from Paranasal Sinusitis with Recovery of Vision after Operation," I began to feel that this patient should have the benefit of an immediate exploratory operation on the sphenoid and perhaps postethmoid sinuses, even though the appearance and history were practically negative as to implicating these structures. This bore in on me so that I telegraphed home to my confrére in whose care I had left the patient, advising him to have this operation performed at once if the patient was still blind, because I did not expect to get back home for a week or more, and time seemed to me to be an essential element in doing this.

I raised the question at one of the roundtable discussions, held following the regular academy meetings at Philadelphia, whether we should resort to operating on the posterior paranasal sinuses in cases of spontaneous amaurosis with no demonstrable cause, which was answered by Dr. Benedict, of Rochester, Minn., who practically stated that, in his opinion, every case of retrobulbar optic neuritis should have an exploration of these sinuses even though there were no signs or symptoms of their involvement and that this should be done within a few days from the onset of the amaurosis.

I returned home on October 25th, and found the patient at the hospital, having been operated on four days before, as suggested by me. Dr. Parsons, of Sioux Falls, had exenterated the posterior ethmoid and sphenoid sinuses on the right side, apparently not finding much demonstrable pathology.

The patient was still blind and was just having convulsions when I entered the room. I noticed that the convulsive movements were purposive, and other findings soon corroborated my suspicion when I first entered the room that we had a case of hysteria to deal with.

Examination of the eyes revealed pupillary reflex to light, direct and consensual, normal. There was no change in fundi, no papilledema. Ocular movements are normal.

She now talked with a lisp, recognized my voice, and talked quite rationally when not in a stupor or in convulsions.

The postoperative convalesence was uneventful, and her general condition was apparently good. We suggested to her that she would surely see in a few days. The following day we told her we thought that she would be able to tell the color of flowers by smelling them, which she did. In making this experiment, we made sure that she could only tell the colors, however, when she could both smell and see them and not by either alone. We told her that she would be able to see the next day, and, sure enough, about 4:30 P. M., the following day her sight suddenly returned. The day after that she could read as well as ever and has had no trouble with her vision since. She was taken home from the hospital a day or two after regaining her sight, where she has been since.

While in the hospital she developed attacks of stupor or lethargy, each attack usually lasting only a few minutes, but recurring at frequent intervals. She would go to sleep while talking to anyone or while standing up, when she would begin to talk at random, snore, groan, or indulge in various convulsive purposive movements. She would wake up at once when sharply spoken to and talk perfectly rationally, while fully awake.

With the exception of complaining of a little sore throat at one time and various other vague head symptoms, when asked she always says she is feeling fine. Is eating well, usually sleeps well, and is gaining in weight a little.

I saw and examined her the last time last Saturday, when her general demeanor was as above outlined, but physical condition normal. Vision and general condition of eyes are about the same, except that it seems as though there is a little extension of the chorioretinitis toward the temporal side in the affected eye.

Presents a tachycardia; pulse, 110; oral temperature, 98°; systolic blood pressure, 132; diastolic 65, which suggests some nerve irritation with vasomotor constriction, increasing pulse rate and raising systolic blood pressure.

In reviewing this case it seems that we might have made a diagnosis of hysteria when the sudden blindness first appeared, and we would not have subjected her to the nasal operation had we been more careful in making tests of the sensation of various skin areas and particularly if we had given more attention to the fact that her pupils responded to light. (Tests of her visual fields could obviously not be made.) For a retrobulbar optic neuritis to cause this sudden blindness, involving both eyes simultaneously, the lesion would almost have to be at the chiasm and be produced by an edema within the nerve sheath or by compression from without, and while it is difficult to explain how the pupillary reflex to light (particularly the consensual reflex) could persist in that condition, we reasoned that the fibers of the pupillary reflex arc might resist compression longer than the fibers carrying sight impressions, and thus functionate longer.

This is questionable, however, and we feel now that we should have paid more attention to the pupillary light reflex and been influenced by it in making our diagnosis; in fact this was the important differential point in this case. We probably would have done this had it not been for the pre-existing chorioretinitis, the cause of which we are still obliged to guess at. This, of course, is not functional, and it is now a question in our mind how much, if any, the cause of this vascular and nerve eye lesion is responsible for the functional disease, viz., hysteria.

Another question that arises in a case of this kind, is whether or not institutional care for such a patient is advisable at this time. She does not seem to be improving any at home. The psychopathic condition has now existed for about three months. The parents are financially unable to place her in a private sanitarium. Whether it is advisable to commit such patient to the state hospital for the insane (with consent of the parents of course) is a question on which I solicit your opinion and frank discussion.

OBSTETRICS IN THE HOME WITHOUT NURSING FACILITIES*

By J. P. Isaac, M.D.

FREEMAN, SOUTH DAKOTA

A physician cannot absolutely avoid overhead automobile expenses, but he can buy a Ford; nor can he successfully conduct obstetrics in the home without nursing facilities, but he can utilize the laity.

As in any other walk of life, if the best is not to be had, the next best is made to serve.

The medical profession is better equipped today than ever before, and nursing has reached the highest standards of its existence, still there are a few weak links in medical and surgical practice that greatly impair the efficiency of our healing art. One of these defects is the faulty coöperation of the laity where they must be depended upon.

We have, for example, a fine system of isolation and quarantine for the prevention of contagion, but the faulty coöperation of those under quarantine is constantly wrecking the efficiency of our system. Another example is found in the management of a puerpera outside the pale of hospitals and without trained nursing. It may be contended that there should be no obstetrics conducted outside of hospitals and beyond the reach of trained nursing, but the stubborn fact remains that this condition is very general in country districts. Wherever hospitals and nursing facilities cannot momentarily be brought into service, there is still a way, and this is through the intelligent coöperation of the family. The medical profession often falls short in effecting this coöperation.

Since obstetrics in the home is one of the familiar branches of my practice, I shall use this subject as a background of a few thoughts in regard to intelligent coöperation of patients and their family with the physician.

As a profession we frequently fail to establish smooth working contact with the laity. They have a right to know the "why" and "wherefore." Reticence in divulging professional knowledge may justly be interpreted as fear of exposing ignorance. A certain amount of intelligence very much like our own can safely be taken for granted in most folks we deal with. True, we still have those among us who stick out their chest and say: "I have just one remedy left, it will kill or cure." And those who take advantage of a favorable turn in a malady and claim "another life saved by our skill." But on the whole the age of mystics in medicine is past. Hats and whiskers have gone into the discard. Knowledge has displaced mysticism, and to disseminate this knowledge the initiative must come from the profession. It is up to us to teach. We may as well accept this duty gracefully as to balk because of the difficulty and thanklessness of the job.

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*Presented before the Sioux Valley Association at Sioux Falls, S. D., July 20 and 21, 1921.

A very fine young physician and good obstetrician said to me: "I leave my patient in clean condition, and the rest is up to the family." This is good as far as it goes, but it does not go far enough. I left a patient in a clean bed with clean dressings one night. I saw her again six days later, badly infected, apparently in the same clothes and bedding as a week ago. This woman died. I feel no direct personal responsibility, and yet I must admit that my obstetrical system proved to be defective, and my record shows a death from infection. Perhaps I did not emphasize my lesson sufficiently. Sterile dressings were there, but not in proper use. I am more determined than ever to emphasize my instructions.

When you read an up-to-date delineation of the methods of conducting a case of labor, and when you absorb this information with the purpose of applying it in practice, you must be prepared to make many required adjustments before you can obtain a successful working plan suitable for ordinary home conditions. In most cases you have no nurse nor any general knowledge of the requirements in surgical cleanliness, and still a certain responsibility for the ultimate outcome rests with the attendant. If a physician uses aseptic precautions in handling a puerperal case, and if those who follow him neglect and infect his patient, he need perhaps feel no personal guilt, but his system has a weak spot that needs looking after.

Much information is disseminated today in practical nursing and hygiene. My patients have frequently benefited from such information. But they are surrounded mostly by rather doubtful hygienic conditions. Therefore, my problem is to adapt the best modern methods and ideas of surgical cleanliness to the average home surroundings. Our task includes responsibility for the preparation of the patient, the conduct of labor, and the after-care. In the preparation of the patient the physician must assume the responsibility for having things done, if they are still undone upon his arrival. An enema is an asset in preserving cleanliness. If no one can be found to attend to this, it will not harm the dignity of the profession for the accoucheur to do it himself. The same applies to scrubbing the field of operation and making the bed. Having now a field of ordinary cleanliness, but not absolutely sterile surroundings, the patient will be comparatively safe from infection, if all intravaginal examinations are made with sterile gloves. Every household has a stove and kettle. Boiling water can readily be kept going to sterilize gloves and instruments for use.

During labor all external manipulations may be carried on with ordinarily clean hands, resorting to sterile gloves whenever intravaginal manipulations become necessary.

The after-care, which the physician begins, but does not continue, is the weak link in his obstetrical practice in the home. Whether he does it himself or sees that it is done, the puerpera must be left in a clean bed, with sterile dressings, and some one must be instructed to carry on. If the attendant carries cotton, gauze, and antiseptics with him, better results will be assured.

Some one must be taught the care of the patient. The shortest lesson that I can arrange consists of instructions to keep the bed clean by at least one daily change, a local bichloride or lysol sponge or douche twice a day, and frequent sterile dressings to be changed as needed. The making of a sterile pad from cotton and gauze may be demonstrated before the amateur nurse, calling attention to a way of holding things by the corners. The mother's diet, regulation of the bowels, and care of the baby offer less difficulty to the amateur.

It is truly uphill work and is attended with many disappointments, but often you will see that your lesson took by the way things look when you go back another time. Again you may find what I found when one of my patients put a rag under the gauze and cotton to keep the nice clean dressings from soiling. My lesson had failed. The next time I shall review more thoroughly.

In order to discourage bacterial growth in my obstetrical outfit I keep, in the bottom of the bag, a bottle of cotton saturated with formaldehyde, covered with a perforated lid. I also avoid carrying from place to place stirrups, syringes, and other appliances hard to sterilize.

Incidentally, it is recommended to do only the most urgent repair surgery. Coaptation with the least stitches possible is the rule. Intravaginal absorbable sutures invite infection readily in cases of doubtful asepsis. A dead woman with a well-repaired perineum is less desirable than a live one with second-rate results that can still be improved. External antiseptic irrigations over a pan are very useful and are very much like the Carrel-Daken idea.

Summing up briefly, I plead for making the best of existing conditions in the ordinary home, taking for granted that most average folks have sense to understand a simple lesson in prophylactic asepsis and hygiene; and on this supposition leave a puerpera and her family better informed after your attendance than before. After all, real success in medicine and surgery can be obtained only when the patient and the physician coöperate intelligently.

CASE REPORTS PRESENTED BEFORE THE MINNESOTA ACADEMY OF MEDICINE

Meeting of February 8, 1922

Dr. H. L. Staples, Presiding

By DR. A. E. BENJAMIN

Case 1.—Gastric Ulcer with Appendicitis. Mr. A. R., aged 48, married, carpenter.

Family history: Negative.

Personal history: Typhoid and diphtheria when young.

Present illness: Pain in epigastrium for the past four weeks, gnawing in character, comes on two hours after meals. Acid foods aggravate it; other foods relieve it. Eructations marked. Some pain and tenderness in right upper quadrant, radiating to back.

Examination: Poorly nourished. Two points of tenderness,—epigastrium and gall-bladder region. Hemoglobin, 80 per cent. Stomach contents, 66 per cent HCl. Urine, normal.

Operation, October 13, 1921: Right rectus incision. Retrocecal appendix removed. Ulcer three-fourths inch in diameter on posterior wall of stomach, high and near lesser curvature. Gall-bladder normal except for a few adhesive bands. Lymphatics of gastrocolic omentum, much enlarged. Stomach opened and base of ulcer cauterized. Abdomen closed in usual manner. Gastro-enterostomy not performed because of location of ulcer, and its size and possible malignancy.

Convalescence: Vomited once. Otherwise, normal. Gained forty pounds in six weeks.

Present findings: February 4, 1922. *X*-ray evidence points to an hour-glass constriction in region of pars media, due to old ulcer on the lesser curvature. Motility somewhat interfered with; obstruction not great. Not feeling as well the past two weeks. (Has been working right along.) Appetite not as good as before. Meat seems to disturb him. Is somewhat constipated, and does not sleep well.

Case 2.—Duodenal Ulcer. Miss E. L., aged 42, teacher.

Family history: Two brothers and one sister died of tuberculosis.

Personal history: Operation for fibroids three months ago. Complete hysterectomy. Duodenal ulcer diagnosed by *x*-ray and at time of hysterectomy.

Present illness: Pain in stomach, especially after eating acid foods, for the past six to eight years. Has been quite constipated. Past few weeks has been worse. Has vomited several times with relief of pain. Has lost about ten pounds in last three weeks.

Examination: Some ptosis and enlargement of stomach. 85 per cent retention of motor meal. Hemoglobin, 85 per cent. Weight, 114 pounds. Urine, negative.

Operation: February 1, 1922. Local, gas analgesia and small amount of ether. Midline incision above umbilicus. Ulcer found obstructing pylorus on duodenal side; a great deal of scar tissue. Thought advisable to do a posterior gastro-enterostomy. Posterior gastric wall adherent from perigastritis, making it difficult to get at stomach. Stomach was dissected loose and posterior gastro-enterostomy performed with Eastman clamps. Inner edges were sewed with No. 0 linen sutures and outer edges with No. 0 chromic continuous (two rows), with back-lock stitch occasionally. Mesocolon stitched around gastro-enterostomy just under the jejunum. Cigarette drain placed below the transverse colon. A rather thin peritoneum was sewed with plain catgut. Fascia and muscle sewed with chromic No. 1 double. Skin sewed with No. 1 single.

Present condition: Temperature and pulse, normal. Vomited once following operation, but is now taking semi-solid diet.

Case 3.—Duodenal Ulcer, with Membranous Pericolitis and Perigastritis. Mr. H. C., aged 37, laborer.

Family history: Negative.

Personal history: Quinsy twice, years ago.

Present illness: For six to eight years. Dull pressure pain in pit of stomach two to three hours after eating. Food relief inconstant. Never tried soda. Some remissions, but no definite seasonal variation.

X-ray examination elsewhere in 1921, with diagnosis of "duodenal ulcer." Operation elsewhere with removal of appendix and separation of adhesions, which gave the patient relief for two months. Vomited considerably for several days following operation and was greatly distended. Post-operative hernia and thin weak wall resulted. Comparative comfort from liquid or semisolid foods when well regulated, but aggravated when working, and then vomiting was present.

Examination: Some tenderness in epigastrium. Blood pressure, 122/70. Hemoglobin, 85 per cent. Urine, sugar, slight reduction, few hyaline casts. Blood chemistry, normal.

Operation: February 2, 1922. Ether anesthesia. Incision along old scar just to right of umbilicus, extending about three inches above umbilicus. Found ulcer with scar tissue causing obstruction at pylorus; ulcer not active. Adhesions around duodenum, liver, and gall-bladder. These were separated and raw surfaces covered. Adhesions, also, extending along anterior abdominal wall for about five inches. Extensive membranous pericolitis—double shotgun barrel arrangement. This was separated and sterile vaseline applied. Great omentum badly adherent down toward mesentery or root of transverse colon. These adhesions were also separated. Patient had a perigastritis at the greater curvature and anterior surface with adhesions. Posterior gastro-enterostomy performed. The inner suture was of linen, the outer of No. 0 continuous chromic gut with back-lock stitch occasionally. Jejunum dilated; mucous membrane redundant. Angles of gastro-enterostomy thoroughly reinforced. Mesocolon stitched in a few places around opening. Cigarette drain placed below transverse colon. Peritoneum sewed with plain catgut, turning edges outward. Muscle and fascia sewed with chromic catgut imbricating rectus muscle. Fascia reinforced with silkworm sutures tied over gauze outside of abdomen.

Present condition, six days post-operative: Temperature and pulse, normal. Considerable vomiting for three days following operation, relieved by gastric lavage. Some hiccoughs. Now taking semisolid diet with no discomfort.

DISCUSSION

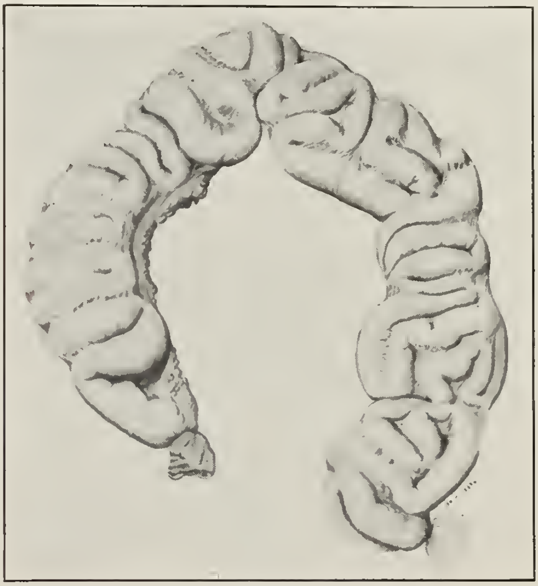
Dr. A. Schwyzer: The point that the doctor made, that these patients were eating on the third day and making very little trouble, I think is one worth while discussing. It seems to me that if we feed them the proper things we can start feeding soon. In the last two weeks I have had two patients who were walking about the ward before the week was up. If we give them food that causes no trouble, not too much plain sweet milk, but rather Bulgarian sour milk, they should do well. I have started in giving them this milk (it probably helps keep the wound sweet inside), and I find patients are very ready to take it.

Setting them up is a very important point. I once had a patient who vomited for five days, and I was desperate, thinking I might have to operate again to make a free passage, when as a last resort I had her sit up in a chair and gave her an egg, crackers, and liquids, and she stopped vomiting at once. I think it was getting her up in the vertical position that did the work, for, of course, the stomach would then drain better.

As to an ulcer on the lesser curvature, that is a rather difficult problem. Is gastro-enterostomy going to do any good? In some cases we can see wonderful results. Those are the cases in which there is a distinct pyloric obstruction. Then a drainage operation has a chance to do good. I remember one patient who was operated on by one of us here a good many years ago, and the wound was closed up again because the mass was thought to be an inoperable carcinoma of the pylorus. Then Dr. Dunn operated six months later and made the diagnosis of hypertrophic ulcer of the pylorus. The patient was well for fourteen years, and then came to me in misery. After a barium meal we could see far up on the lesser curvature a niche. When the barium meal had gone by, that niche was still full, but twenty-four hours later it was empty. Nevertheless it could still be recognized. The pylorus was impermeable, and the old gastro-enterostomy was nearly closed. A gastro-enterostomy was made again, and she has been well since that time, which was about seven years ago. Not long ago I made a wedge-shaped excision of a large saddle ulcer on the lesser curvature and it was rather difficult to sew the parts securely. With cauterizing the ulcer and leaving it at that, without drainage operation, I have had no experience.

By DR. ALEXANDER R. COLVIN

Case 1.—A man, aged 72, having previously been unusually well and strong, began to vomit. The vomiting became more and more frequent, so that, finally, a diagnosis of pyloric obstruction from carcinoma was made. When I saw him he was much exhausted and vomited frequently. Peristaltic waves occurring rhythmically could be seen traversing the stomach region. He did not have any pain.



Illustrating the condition in Case 1.

An exploratory incision under local anesthesia was made, and except for the anomaly of the small intestine, which I will show you, the only other finding was an indurated mass at the head of the pancreas. The stomach and duodenum were normal in appearance. At autopsy, twenty-four hours later, a perforating ulcer of the second portion of the duodenum was found. The base of the ulcer was formed by the head of the pancreas, and there was a good deal of inflammatory thickening around the ulcer region. It is rather remarkable that his symptoms had existed for only about one month, and that the symptom complex was practically that of high intestinal obstruction.

The small intestine of this man, after running in a normal manner for about eighteen inches, became fused into a mat about two feet long. This terminated at the ileocecal junction. This mat, as I have called it, is composed of U-shaped loops of intestine, with a minimal amount of fatty areolar tissue between the loops. The mesentery proper was very short. I find in Huntington's

"Anatomy of the Peritoneum," photographs of the intestinal tract of several lower forms of animal life in which the intestinal canal conforms more or less closely to the condition in our case.

It is again interesting to note that this man never suffered from the anomaly.

The condition may well lead to speculative thought regarding the symptoms ascribed to kinks, etc., of our intestinal tracts.

Case 2.—A boy, aged 7, was run over by an auto truck, and admitted to the City and County Hospital. I saw him about an hour after the injury. He complained of pain and vomited. His pulse and temperature were practically normal. He had a reddened area about two inches wide running across his abdomen from above at the left rib down and to the right landing above the crest of the right ilium. Believing that the probabilities were that a visceral injury was present, the abdomen was at once opened. On opening the abdomen, casual inspection revealed a normal-looking peritoneum. On raising the omentum and transverse colon and exposing the duodenal-jejunal angle, the jejunum was found to be completely cut through—one should say, perhaps, torn through. The mesentery of the distal segment was torn off for about four inches. The proximal segment was about one and one-half inches long, and was denuded in part of its peritoneum.

The rather interesting feature was that practically no blood and no intestinal contents were found in the peritoneal cavity.

An end-to-end anastomosis was made after removing the four inches of the distal segment, which had been deprived of its mesentery. This was done with some misgivings because of the doubtful condition of the proximal segment. At the end of four days, continuous vomiting of greenish and greenish-black fluid persisted, and it was decided to do a gastro-enterostomy. This was done, and a catheter was passed through the anterior wall of the stomach, down through the gastro-enterostomy opening so that he might be immediately fed. He died twenty-four hours later.

At the second operation, upon inspecting the site of the anastomosis, a small amount of bile-stained fluid escaped, but there had not been any escape up to that time.

While a resident surgeon at the Royal Victoria Hospital I saw an autopsy on a boy who had been crushed against a fence by the hind end of a coal cart. There were no external marks of violence, but the jejunum was torn across at the same point as in the case just reported. A further finding was a circular separation of the intima of the abdominal aorta, without demonstrable injury to the external coats of the artery.

A few years ago I saw a young man who had been thrown from a horse, striking his abdomen against a tree. When seen he had symptoms of peritonitis. At operation, peritonitis was found, and his jejunum was torn through for half of its circumference.

In the first case reported I fear that if my mind had not reverted to the autopsy seen as an interne, I might have overlooked the condition found because of the absence of any findings in the peritoneal cavity, except the torn bowel; for, if a systematic exposure of this particular corner had not been made, the condition could easily have been overlooked.

Regarding the repair of the damage done: I feel that in all probability had the ends of the bowel been closed and a primary gastro-enterostomy made, or an anastomosis made between the jejunum and the first part of the duodenum, the boy might have lived. He did not die of peritonitis. He died of exhaustion, or, if you like, a high intestinal obstruction.

DISCUSSION

Dr. W. A. Dennis: This case reminds me of a case I saw some years ago with Dr. Wheaton. It was a case of strangulated hernia. We were surprised to find a mass of small bowel just as this man's, about eight inches long altogether. Strange to say, that man never had had symptoms before that and never any afterwards. We decided not to free the adhesions, and he had no trouble whatever.

In connection with the case in which the small bowel was divided, I recall a case, at the City Hospital, of a boy who was injured in the same manner. I cannot recall whether he was operated on, but when he came to autopsy it was found that the duodenum had been divided retroperitoneally.

Dr. Brown: I would like to ask if this old man had a large omentum. I have worked with the lower animals, and we have found just such a condition in some of them. We found that, in animals that have an umbilicus and have the intestinal tract below what corresponds to the navel in humans, the segment corresponding to the small intestine is oftentimes folded back just as this is here. The mesentery is always short and close to the dorsal wall. As I recall, it occurs usually in long-bodied animals.

It seems to me that this may be a purely congenital thing that may have shown some atavistic tendency.

Dr. H. B. Sweetser: I would like to ask Dr. Colvin how long after the injury did he operate on the boy? It is interesting to know how long before we would have a relaxation of the bowel.

Dr. Colvin: The boy was operated on within two hours of his injury.

Dr. R. E. Farr: I would like to mention two points in relation to this case. One point might be illustrated by the case of a boy who jumped off a truck and struck his abdomen against a post. I explored him within two or three hours and found the small intestine cut off, apparently from having been impinged between his spine and the post. The ends of the intestine had not leaked at all but were contracted down, apparently tight. I looked up the literature at that time and found that many cases of this kind were reported. The gut ends are closed through nature's effort to prevent leakage.

The other point relates to duodenal cases in which perforation cannot be easily repaired. In a case which I operated on somewhat over a year ago a thick indurated ulcer had perforated, and it was impossible to close the defect. A clamp was placed on the other side of the ulcer, and the whole mass quickly excised as the patient's pulse was over 160 and he was cyanotic. A stomach tube was passed and brought out through the pylorus, and moved down six or eight inches into the jejunum. The duodenum was then closed over the tube with a running suture of chromicized gut. This was done under local anesthesia, and, although the patient was pulseless from the time of operation at 2 p. m. until 4 a. m. the next day, he made a good recovery. Hot water was poured into the jejunum in fairly large doses and had a marked stimulating effect. The ease with which one may sew the gut over a tube makes this method a great time saver.

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APRIL 1, 1922

MINNEAPOLIS CLINIC WEEK

Beginning Monday morning, April 10th, at eight o'clock, Minneapolis will open its fifth Annual Clinic Week; and on account of its following so closely the meeting of the American Congress of Internal Medicine, on April seventh and eighth, in Minneapolis, a large attendance is expected. It is to be hoped that all other clinics have not exhausted the medical profession, and it is to be hoped, too, that past Clinic Weeks may recall the abundance of material which was presented by Minneapolis men. The tentative program has already been sent out, and the final programs will be presented to the visitors after their arrival.

Attention is again directed to the fact that the University is opening its short course, of three weeks, which will in no way interfere with, but will supplement, Minneapolis Clinic Week. Then, too, we must remind our readers that the Clinic Week opens on April tenth and is concluded on the evening of April thirteenth.

A very important announcement is to the effect that the railroads have granted a one-and-one-half fare to those who attend Clinic Week. It is necessary, it is absolutely imperative, that the purchaser of a ticket for himself or members of his family who want to take advantage of this offer, must secure a receipt from his ticket agent, which is to be validated at the headquarters of the Clinic at the Hotel Radisson before the return of the visitors. On account of the reduction in fare, it is hoped that visitors other than physicians, but who belong to the physician's family, will come to Minneapolis. They, too, must remember that their tickets must be validated the same as those of the medical men.

On account of hotel service in Minneapolis it is necessary that everyone should secure a room at his earliest convenience. It is much easier to give up a reservation than to acquire one without previous notification.

The afternoon programs appear on another page, and the Executive Committee of Clinic Week think they will be better than anything they have had before.

The Academy of Ophthalmology will have a dinner meeting at the Minneapolis Club Wednesday at 6:30 P. M.

On Monday evening there will be a dinner meeting of the Northwestern Pediatric Society. Members or visitors are requested to register with the secretary of either society.

PUBLIC HEALTH INSTITUTE

From the twentieth of March, this year, until the thirteenth of April, Minneapolis will be pretty well covered with both public-health discussions and medical topics of all kinds, and the beginning and ending of Clinic Week. Under the auspices of the U. S. Public Health Service, together with the Minnesota State Board of Health and the Medical School of the University, an extensive and interesting program has been in progress and is now completed. The various agencies which co-operated include almost everything in the way of social and public-health measures. The program was so arranged that clinics were conducted at the University from early morning until late in the afternoon, and, apparently, every possible phase of public-health work was considered. Venereal diseases and their relation to public welfare were also discussed by men from all over the state. This course is really a course which every medical man and every social worker should have attended. It is not only instructive, but keenly interesting.

One of the important features of the week was the public discussions given by Dr. Frederick R. Green, Secretary of the Council on Health and Public Instruction of the American Medical Association. He was actively engaged in talking (and everyone who knows Dr. Green knows he talks well) from the time of his arrival on Monday up to the time of his departure on Friday evening. His talks were in no way limited to medical men, but covered audiences of mixed types, association community workers, public assemblages, and talks to the people in the amphitheaters of the high schools of Minneapolis. With his long experience and his familiarity with the work of public instruction he was a drawing-card in the Institute.

One wonders, sometimes, whether the organizations interested in or incidental to public-health work are not being too rapidly multiplied. It has been humorously suggested that if this sort of public instruction goes on the people will know so much about themselves and will know so well how to care for themselves that very soon the doctor will have nothing to do. In spite of the efforts of all these associations, epidemics occasionally appear, giving the medical man a ray of hope, perhaps, and not shutting him off entirely from his share of work in the effort to eliminate disease, to relieve suffering, and, sometimes, to assist in the cure of disease. One fact remains, however, that cannot be wholly accounted for, and that is a universal improvement of the people in regard to their health. They are taking better care of themselves, they are investigating more carefully methods which are for their own good, and the result has been a widespread cessation of the common diseases all over the country. This is due in part, of course, to the fact that in every large center there is an efficient health department with a health commissioner who is highly trained.

Naturally, out of a large number of speakers, there must be some who are more or less uninformed and a few who are rather radical in their views; but this is to be expected. They really do no harm, because they go to such violent extremes that an audience attending an institute of this order for information would simply be amused or entertained by this class of speakers. Then, too, there is a feeling on the part of some of the outside physicomedical world who think that there is too much of this instruction given without due consideration of the communities' welfare from other points of view. However mixed the instruction, however little the public outside of the medical and nursing profession understand what is being said, the results of such a conference must be of great benefit. The attendance has been all that could have been expected. People came from various parts of the state, not only to participate but to receive instruction; and the health officer and the social worker will go back home greatly cheered and refreshed.

Dr. Albert J. Chesley, Secretary and Executive Officer of the Minnesota State Board of Health, deserves the greatest commendation for his efforts and work in the selection of subjects and the arrangement of the program.

ELIMINATION OF UNDESIRABLES

Minneapolis was singularly honored recently by a meeting of lawyers from the Province of Manitoba and from the state of Minnesota and its surrounding sister states. The addresses were of special interest and the occasion was one of great dignity. Lawyers talked to judges and the judges could not talk back,—a rather unusual performance. The keynote of the entire session was the explanation of the proposed legislation which will be presented to the next state legislature for incorporation of the bar of Minnesota. It is for the express purpose of weeding out undesirable and incompetent lawyers who are declared to be mulcting the public and damaging the interests of the legal profession.

This is the first time, we think, that Minnesota has attempted so radical a movement in favor of the legal profession, and it suggests that the physicians do likewise to improve the medical profession; that they attempt to weed out, cut out, or eliminate such members as are not only incompetent and unprofessional, but those who practice quack medicine. The two professions, medicine and law, would have to work together if this can be carried out, because the county attorney must prosecute the quack doctors or the incompetent physicians or surgeons, or the dishonest men in the profession. Of course, charges will have to be preferred through the medical societies before this amalgamation of law and medicine can take place. The medical men have advanced in their state laws tremendously. They have secured legislation, particularly in Minnesota, which has been the foundation for the laws in many states, and yet we are hampered and harassed by a number of unqualified and "inflammatory" medical men to such an extent that we feel that the competent doctors should be in some measure better protected.

Then, too, another great problem presents itself, that of supplying medical men for the country districts. So far many of the towns in the Northwest have suffered because of inadequate medical service, not because of incompetent service, but because of the difficulty of getting medical men to locate in small towns. They would rather drift into the larger cities and take their chances, and perhaps thereby get into more or less trouble. In New York state the State Grange, at its convention in Binghamton, made it possible for physicians to come into their communities. They have endorsed a proposal that every country community now without a physician shall erect a home and a small hospital for the accommodation of one, thereby solving one of the most important questions the doctor has to meet when he starts his work in the country.

In order to do these things and do them right we should have a survey of the state made, and doubtless it is already in the hands of the state officials, showing the number of inhabitants in a community, the number of doctors, if any, and such further information as will enable the doctor to know what is coming to him.

A few years of country practice is great training for a young man. He is put on his own resources, he is obliged to meet difficult situations, and the presumption is that he can do so if he has had adequate teaching and training. That the University of Minnesota Medical School provides. It takes him, however, six or seven years to reach that high point where he is qualified to go out and fight the battle of life in medicine. The medical education that he receives is not only academic, but medical in its broadest sense,—with clinics, bedside instruction, lectures, research work, and a year in the hospital. The situation is evidently so acute that Eastern hospitals have volunteered to take all of the graduates in the Minnesota Medical School. That must not be. We need these men in Minnesota and in the Northwest, and they must not be diverted in their course, but we must offer them advantages attractive enough to keep them in the shadow of the University. This simply leads up again to the desirability of creating and maintaining a high standard of men; of their working closely together, and their being protected by some legal machinery which will permit them to practice without the disqualified man interfering with their work.

THE THIN AND THE FAT

There has been a good deal of discussion lately, and a good deal of newspaper comment, on the poor but happy fat lady and likewise the fat man. The subject was taken up in social circles under the guidance of public-health committees. They put these poor, perspiring fat people through yards of exercise, hoping to reduce them, and they have succeeded in some instances, —particularly when the exercise has been sufficiently active and the sweat-producing properties of the weather have been in co-operation; "oodles" of fat and sweat have dripped from these naturally fat people onto the surface of the earth. This is kept up for a variable length of time. The average fat man or fat woman can stand it about two weeks, and they look with joy upon the loss of from one to five pounds. Sometimes they lose more fat, if unusually courageous, by continued exercise and particularly when associated with a proper diet. After that comes a period of relaxation and of feeding, and then the unfortunate fat lady or fat man gets up again to his or her normal weight.

Nature has a good deal to say about whether one should be fat or thin. Sometimes ancestry is more or less responsible for the construction of the fat or the thin person. There is a certain definite inherent tendency that shapes us all, whether fat or lean. But the controversy between the fat and the lean has gone on until it has finally become a delusion.

A very interesting article recently appeared in *The Outlook* (March fifteenth) by Charles K. Taylor, on what he calls "The Great Under-Weight Delusion." He says that sometimes the people as a whole have their own pet delusions from which they derive a great deal of comfort, at least they have a lot of fun out of some of these delusions. At other times they are not taken seriously enough. The average dietitian and the average feeder have an idea that certain individuals should weigh a certain number of pounds, in order to demonstrate that they are healthy and able to take care of themselves. The statement that a certain definite weight should be maintained applies well in childhood, because it means that children are brought up under proper conditions. They have certain foods prescribed for them, which form the basis of their future constitution. They have certain definite hours of rest and recreation, which is a part of the great up-building process. But when the child has grown into a man or a woman, then the situation is more or less changed,—not wholly on account of conditions, but on account of the general inequalities and changes in their daily life, their daily work, and their mental environment. Here is where the great delusion of underweight comes in; and yet, when one reflects upon the number of people who are thin, or seemingly so, one should take into consideration the construction of the individual,—that he may be of the high-strung type, who is wiry, tough, and equal to almost any emergency, in spite of the fact that he weighs less than he should according to rules of measurement and scales of doubtful value. Mr. Taylor says that the mother and the teacher (and, we think, he includes the pediatrician) realize with consternation, in spite of the investigations carried on by thousands of workers, that little Willie, or his prototype, does not reach the weight that he should corresponding to his height and size. Yet in spite of the thinness of the individual, he may be in perfect health, and the matter of a few pounds is not one for serious consideration.

Of course, at the present day all children are weighed from infancy on through school, and while growing up their weight is carefully recorded and the gain of ounces or pounds is looked upon as a great necessity. This same child or young man or woman may be full-blooded, may have normally-acting functions of the body, but for some reason unknown to us he refuses to put on the necessary pounds of flesh.

But now comes to our rescue the vitamine theorist. He thinks it is all due to a lack of certain vitamines, of which he sometimes frankly admits he knows nothing; he has heard the word, and he has read the printed matter which accompanies the instruction for vitamine increase, yet he does not know a blessed thing about it. But some under-weight individual is fed on vitamines, and it is shown by the very best of authorities that fresh foods are the simplest, as well as the richest, sources of vitamines. However, in order to keep up with the procession we are now supplied with vitamines in tablet or liquid form, as you choose, in order to maintain a certain body efficiency. Mr. Taylor cites an episode which took place in a phenomenally healthy New Jersey town that was almost purely residential in character and where the great majority of children were more likely to be overfed than underfed. He further said that some folks with the weighing delusion descended on that town and weighed all the children. Frightful! Almost a third were underweight. And right on top of this some expert published the disconcerting news that even in private academies patronized by the well-to-do a surprising number of children were found underweight. This delusion spread over other towns in New Jersey and produced a tremendous consternation.

The effort of many people is to strike an average, but this average is one which takes in all of the children. Those that are equipped with a moderate amount of fat are smiled upon, but the other children, who may be mentally over average, remain in the grip of the theorist. Consequently, it is very difficult to strike the average type. Mr. Taylor finally arrives at one conclusion that seems very reasonable,—that it is both normal and healthy for some children to be more slender than the average and for others to be stocky or thick-set; that it is a matter of inherited type of build, and that all we need to do is to see that a child is properly developed for his or her normal type of build. There it is in a nutshell. If the child is healthy, alert, active, of good color, and is developing mentally as it should, there is no reason to worry. The matter of a few pounds is of no consequence. But the type of the child, the character of the child, is of prime importance. There are some parents who do not understand nutritional conditions at all, and they permit their children to eat all sorts of stuff which the average parent would discard; children are brought up on foods that are unnecessary; they are given too much liberty in their choice of foods and time of eating. The result is they do not start very well. But with these children under normal circumstances and normal conditions let them work and eat in a normal manner, and the whole problem is solved. The average boy is rather proud of his muscular development. If he can show his comrades that he has a muscle biceps that is outstanding and firm and that the muscles of his forearms and legs are hard and full of ginger, he is quite equal to the average emergency. And if children are made to realize that their muscular and mental development are of much more importance than their fat development, they will take a greater interest in their work and their health, and physical development will then be adamant against any criticism of weight or underweight.

MISCELLANY

AN ANALYSIS OF THE FETAL GROWTH OF THE HUMAN CENTRAL NERVOUS SYSTEM

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(Abstracted from Jour. Comp. Neur., Vol. 33, No. 5, December, 1921.)

The subject of human growth deals with progressive and constantly changing phenomena. If we limit the significance of growth in man to definite magnitudes expressed in terms of time, we are studying the velocity or the rate of growth. Thus the pediatrician, for example, who investigates the change in height of the child throughout the period of infancy and childhood, is in reality studying velocity or the change in height of the child during postnatal life. He starts his curve of growth at the incident of birth and consequently obtains only a limited view of the entire progression. In order accurately to interpret his data he finds it necessary to study the slope and character of the entire growth curve. To do this he investigates the epochs of the ovum, the embryo, the fetus, and the adult, as well as the periods of infancy and childhood.

The present study on the growth of the human fetal central nervous system is likewise but one phase of a curve. For this reason, rather than any immediate practical application of the results, this problem is interesting to both clinician and scientist. The investigation was undertaken with the hope of gaining a more accurate knowledge of that phase of the growth curve of the human central nervous system occurring during the fetal period, viz., two to ten months of prenatal life.

The material used in this study consisted of 156 human fetuses fixed in formalin. They ranged from 3.1 to 53.6 cm. in total body length, and were distributed so that at least one specimen was available for each centimeter interval.

The graphic analysis of the volumetric and linear data obtained for this experiment resulted in a classification of the types of growth in the central nervous system, all of which are somewhat similar in character to the growth of the other viscera and of the body as a whole during the fetal period. The brain and cord fall into four main types of growth:

1. Cerebral growth, which is characterized by (a) a steady and relatively slow increase in volume from the second to the beginning of the sixth fetal month and a constant and more rapid increase from this time to birth, and (b) by a steady and constant growth in linear dimensions from the second fetal month to birth.

2. Brain stem and cord growth, which shows a much more rapid growth from the second to the end of the fifth fetal month than it does in the last five months of fetal life.

3. Cerebellar growth, which proceeds very slowly from the second to the end of the fifth fetal month and then increases tremendously from the sixth month to birth.

4. Compound growth, which represents the combined effect of two or three of the above varieties, predominated by the cerebral type of growth.

ONE COUNTY—FIVE HUNDRED OFFICIALS

This sounds as though Ed. Howe of Atchison, Kansas, had written it himself, but in his "Monthly" he credits it to a "country paper":

"A special car of the State Health board, in charge of a richly gowned and jeweled young woman, came to town not long ago, and mothers were commanded to hurry to the depot and take instruction as to how to raise their babies.

"Then came a Government nurse, another unmarried woman, weighing the babies and instructing the mothers as to the sort of infants they must give birth to hereafter. And now farmers are notified that they must pay a specialist from one of our higher institutions of learning to tell them how to feed hogs.

"It is safe to say that there are in this county today 500 officials, national, state, county, township, city, and district, telling the people what they must do and what they can't do; spying into their homes, their private accounts, their methods of life; laying down the law as to what they shall eat, drink, wear, buy, or spend; making them recount all family diseases, tell the inspecting nurse where they sleep and why married or why single; ordering you to show up your bank account, your debts, your toothbrush, and a record of the number of days your child has attended school last month. Men and women and children are restrained, assessed, directed, advised, prohibited, admonished, examined, until they are about ready to do as the common people did in England 700 years ago: run into caves and rudely chalk on the outer walls: 'No money; no religion.'"

There is more of the same in Ed. Howe's paper; but this is enough to show what one philosopher thinks about government expressing itself through more officials than one hard-pressed county can bear.—*Collier's Weekly.*

RIPPLING RHYMES

Going to Pieces

My years are ten and fifty, and when I meet my friends I say I'm feeling nifty, my cheerful spiel ascends. I cry, "Ach, donnerwetter, life's autumn is good fun! I wasn't feeling better when I was twenty-one!" I bravely make a showing of being free from cares; but I am always going to someone for repairs. My molars drive me nutty and need the dentist's skill; he plugs them up with putty and jars me with his bill. I'm sighing and dodgasting when I am all alone, for I must buy a casting to fix my collar bone; as daily I grow older some grievous want appears; I need a wooden shoulder, I need some new tin ears. The surgeon long has beckoned, the druggist brings his pill, and I must go in second when I would climb a hill. Yet cheerfully I canter along the village street and blithely josh and banter the delegates I meet. "I never stacked up greater," I cry, in hollow glee; "I'd whip an alligator and make a bobcat flee!" Some men may say I'm dotty as on my way I wend, may even say I'm naughty to four-flush and pretend; but I believe it's better to spring a cheerful wheeze than talk of gout and tetter and foot-and-mouth disease. —Walt Mason.

NEWS ITEMS

Dr. L. G. Smith has moved from Medina, N. D., to Mandan, N. D.

Dr. A. J. Herbolsheimer has moved from Rosemount to Minneapolis.

Dr. L. E. Claydon, of Red Wing, has returned from a trip to South America.

Nearly 800 babies were born in the Minneapolis General Hospital in 1921. Not an unpopular resort!

Dr. P. C. Davison, of the Willmar Clinic, of Willmar, is doing post-graduate work in New York City.

The Tri-County Tuberculosis Sanatorium at Salmo, near Bayfield, Wis., will be enlarged to double its present capacity.

The people of Drayton, N. D., propose to build a community hospital in that city. A charter has been granted for the hospital.

Dr. W. A. Watson has resigned from the staff of the St. Peter State Hospital and has gone to New York to do similar hospital work.

Dr. R. S. Mussey, of the Mayo Clinic, has returned from a four weeks' clinical trip spent in visiting obstetrical wards of hospitals of the East.

Dr. C. E. Gray, of Rush City, is now in sole charge of the Rush City Hospital, having purchased the interest of Dr. Engstrand in the hospital.

The Minneapolis General Hospital is endeavoring to collect suitable medical fees and board from patients able to pay for such service, even in part.

The Minnesota State Hospital for Crippled Children has a waiting list of 200 children. This is due probably in part to the high reputation of the hospital.

Dr. Claude Ehrenberg, formerly of the Willmar Clinic, is now associated with Dr. E. W. Alger, of Minneapolis, with offices in the P. and S. Building.

Dr. L. E. Hanson, a recent graduate of the Medical School of the University of Minnesota, has become associated with Dr. C. A. Houston, of Park Rapids.

Dr. I. A. Abt, Professor of Pediatrics in Northwestern University, gave the annual address this week before Alpha Omega Alpha of the Medical School of the University of Minnesota.

The annual meeting of Alpha Epsilon Iota, the woman's national medical fraternity, met in Minneapolis last month. At the initiation banquet nine initiates were taken in.

The architect's sketch of the proposed new hospital, to be built in Bemidji by the Lutherans, shows a beautiful and commodious building, which would be a credit to any city.

Dr. John H. Hardy, the Indian agency physician for some months past at Rolla, N. D., has been transferred to Tucson, Arizona, for public health service on the Mexican border.

St. Paul has a woman physician on its health board, Dr. Katherine A. Nye. She will have charge of the examination of young girls sent to the workhouse hospital for treatment.

Dr. A. G. Beyer, of Red Wing, had planned to spend a year in study in Vienna, but upon the eve of his departure last month, he was obliged to give up the trip because of the severe sickness of his wife.

It is announced that the American Legion Hospital at Rochester will be built, in part at least, this summer. It will be a convalescent hospital for ex-service men and members of their families after surgical operations.

Dr. Carl A. Lindgren, of Minneapolis, died last month at the age of 48. Dr. Lindgren served in the late war and had been gassed. Dr. Lindgren served two years in the English medical service and won several medals for unusual work.

Dr. Frederick R. Green, of Chicago, in his address before the Public Health Institute in Minneapolis last week, made a great hit, especially with the newspapers, which seek epigrammatic statements, of which Dr. Green's addresses are full.

The City Council of Rochester, Minn., has voted to take over the Infant Welfare Work of the city, which has been carried on for the last two years. All expenses will be paid by the city, and the management has been placed in the hands of the City Health Department.

A health tournament is under way among 12,200 school children of Hennepin County, conducted by the County Tuberculosis Association. It is to last eight weeks. Sleeping with open windows during the eight weeks is one of the rules. Prizes will be given the schools showing the best "health performances."

The Board of Governors of the Mayo Clinic have fixed on May 29 and 30 for the fourth annual meeting of the Association of Resident and

Ex-Resident Physicians of the Clinic, the meeting to be held in Rochester. These dates immediately follow the dates of the St. Louis meeting of the American Medical Association.

Dr. and Mrs. W. J. Mayo, Dr. and Mrs. Balfour, Dr. and Mrs. H. S. Plummer, Dr. Lemon, and Mr. and Mrs. Kahler and daughter, Mary, left Chicago March 4, with Dr. A. J. Ochsner and his party, for a month's trip in Mexico. The party will visit Mexico City, Guadalajara, and Colima. They expect to return about April 2.

Dr. O. Oleson, of the U. S. Public Health Service, has been assigned to North Dakota to formulate a plan for the co-ordination of the health activities of that state. North Dakota is doing a splendid public health work, which now needs to be systematized, according to Dr. H. E. French, secretary of the N. D. Public Health Association.

Dr. F. L. Bregel, of Minneapolis, has located at Fairfax. Dr. Bregel graduated from the Medical School of the University of Minnesota with the class of '18, and served in the late war and remained some time in Europe with the Red Cross. For several months past he has been a teaching fellow in medicine in the Mayo Foundation.

Dr. Rosenow has returned to Rochester from Indianapolis, Indiana, where he attended a dinner given in his honor by the medical and dental societies of that city. Dr. Rosenow, who was the speaker of the evening, chose for his topic, "Experimental results of focal infection and elective localization, and a discussion of their clinical significance."

Dr. J. J. Donovan, of Litchfield, died on March 18 at the age of 44. Dr. Donovan graduated from the Medical School of the University of Minnesota with the class of '01. He served two years in the late war, when his health was seriously affected by his being gassed. He was a fellow in the American College of Surgeons and was recognized as one of the leading younger surgeons of the state.

The lay papers of South Dakota speak in very high terms—indeed, in the highest terms—of the late Dr. Frederick A. Spafford, of Flandreau. Emphasis seems to be put upon his service on the State Board of Regents of Education, on which board he served for many years. But all the papers recognize his high qualities as a man. He was active in many lines, and gave efficient service in all.

Dr. George MacMurphey, of Ortonville, died last month at the age of 70. Dr. MacMurphey was born at Prescott, Wis., and graduated from Bellevue (N. Y.) with the class of '78. He remained in Bellevue a year after graduation as an assistant, and began practice in Minnesota in 1879. He moved to Elkton, S. D., in 1886, and practiced there for sixteen years, when he returned to Ortonville. He was a pioneer physician in two states.

The latter part of March and the fore part of April will constitute a notable month in medical matters in Minneapolis, for in these four weeks many medical men have appeared or will appear in the city in attendance upon the Public Health Institute at the University of Minneapolis, the two days' meeting of the American College of Internal Medicine, and the fifth annual session of Minneapolis Clinic Week. Further notice of these meetings appears in our editorial columns.

The meeting of the A. M. A. in St. Louis on May 22 to 26 promises to be one of the largest and best annual meetings of the Association. The grouping of the sections is such that one can pass from any section meeting-place to that of any other section in a few minutes. Hotel accommodations will be ample, yet reservations should be made early. The weather in St. Louis on the dates named will be more than warm—it will be hot. Take your "duster" or pajamas, not your sweater.

The April meeting of the Hennepin County Medical Society, to be held on Monday, April 3, at 7:30 P. M., has the following attractive program: (1) "The Relation of the Medical Profession to the Press and Public," by Dr. W. A. Jones. (2) "The Relation of the Press to the Profession and Public," by Mr. A. B. Chamberlain of the Minneapolis Journal. (3) "The Public, the Press, and the Doctor," by Rev. Phillips E. Osgood, Rector of St. Mark's Church, Minneapolis. (4) "The Relation of the Hospital to the Press and the Public," by Dr. Walter E. List, Superintendent of the Minneapolis General Hospital.

AFTERNOON PROGRAMS OF CLINIC WEEK

MONDAY, APRIL 10, 3:30 TO 5:30 P. M.

Presiding .... Dr. George D. Head

1. The Prospective Mother—Her Care .... Dr. C. O. Maland
2. The Treatment of Pernicious Vomiting of Pregnancy .... Dr. R. T. LaVake
3. The Treatment of Eclampsia ...... Dr. J. H. Simons
4. The Present Status of Operative Obstetrics.... .... Dr. F. L. Adair
5. The Treatment of Puerperal Sepsis........... .... Dr. C. G. Weston

6. The Differential Diagnosis and Treatment of Dysmenorrhea ....Dr. J. C. Litzenburg

TUESDAY, APRIL 11

Presiding ....Dr. A. A. Abbott

1. Care and Treatment of the Premature: Demonstration of the Simple Home Apparatus.......................................Dr. F. C. Rodda
2. Treatment of Constipation and Diarrhea in Infancy and Childhood: Demonstration of Practical Points in Stool Analysis.......................................Dr. Rood Taylor
3. Treatment of the Under-nourished Child: Practical Points ....Dr. N. O. Pearce
4. Treatment of the Nervous Child.......................................Dr. E. J. Huenekens
5. Treatment of the Diseases of the Heart in Infancy and Childhood .... Dr. Max Seham
6. Drug and General Therapy in Infancy and Childhood ....Dr. F. W. Schlutz

WEDNESDAY, APRIL 12

Presiding ....Dr. Robert Emmett Farr

1. The Endemic Goiter Problem: Prophylactic Treatment, with Pictures and Slides.......................................Dr. George Fahr
2. The Röntgen Treatment of a Toxic Goiter, with Lantern Slides and Pictures....Dr. R. G. Allison
3. Surgery in Toxic and Exophthalmic Goiter.......................................Dr. Jas. A. Johnson
4. The Heart in Toxic Goiter......Dr. Olga S. Hanson
5. Correction of External Nasal Deformities: Demonstration of End-results in Patients.......................................Dr. J. D. Lewis

THURSDAY, APRIL 13

Presiding ....Dr. Archa E. Wilcox

1. Why We Need a Psychopathic Hospital at the University of Minnesota.......................................Dr. Arthur S. Hamilton
2. Differential Diagnosis between Constitutional Inferiority and Brain Tumor, with Demonstration of Patient..............Dr. W. A. Jones
3. Treatment of Ureteral Stone, with Lantern Slides ....Dr. Gilbert J. Thomas
4. A Series of Radium Slides Illustrating the Results Obtained by Radiation in the Treatment of Skin Malignancy ....Dr. F. S. Bissell
5. The Meyer Operation and After-Treatment of Club-Foot, with Lantern Slides....Dr. Emil Geist
6. Surgical End-results in Gastroptosis, with Lantern Slides ....Dr. Iver Sivertsen

LOCATION WANTED

In a German-speaking community preferred. Have had an A-1 schooling and interneship, and one year's general practice. Want place with or without property. Married and a Protestant. Address 229, care of this office.

GOOD LOCATION FOR A PHYSICIAN

Rosemount (Dakota County), Minn., needs a doctor, and a good man who locates there will receive the hearty support of the Community Club. The surrounding territory is a rich farming community. Address the Community Club, Rosemount, Minn.

MINNEAPOLIS OFFICE FOR RENT

Office for rent in a physicians' building in Minneapolis with joint use of furnished reception room. Telephone Main 8541.

MASSAGE AND HYDRIATIC INSTITUTE FOR SALE

An old-established institute of the above character with a large clientele and possessing the entire confidence of the medical profession of Minneapolis, is offered for sale, as the owner desires to retire and locate in California. Located in a physicians' building. Equipment complete. Address 230, care of this office.

UNIVERSAL CYSTOSCOPE FOR SALE

Bransford Lewis Universal cystoscope, five telescopes, direct, right angle and retrospection examining, direct, indirect double catheterizing; large clear view; new condition, case; at a bargain. Dr. A. E. Chase, Northville, S. D.

A MALE TECHNICIAN WITH HIGH QUALIFICATIONS WANTS A POSITION

A man who has taken two years of medical work and two years of laboratory work and has also had large experience in laboratories, is open for the head of a laboratory in a hospital or clinic. Can do practically all laboratory work. Will accept a moderate salary. Address 220, care of this office.

POSITION WANTED BY A TECHNICIAN

A young woman who took a full course in laboratory work in the St. Paul City and County Hospital, desires laboratory work in the city or outside. Can do all the routine laboratory work. Address 223, care of this office.

MINNEAPOLIS OFFICE FOR RENT

A modern office with a dentist in North Minneapolis, on one of the best corners in that part of the city, is offered at a very low price. The reception room is well furnished, and the office for rent is partially furnished. A good practice can soon be obtained. Address Dr. J. L. Krishef, Dentist, 1028 Plymouth Ave. N., or call Cherry 2687.

SURGEON WANTS WORK WITH A CLINIC OR IN A FIRM

A 1915 graduate of the University of Minnesota who has been the assistant for the past three years of one of the leading surgeons in Minneapolis, desires work as a partner or in a Clinic. Can also help in general practice, if required. Speaks Norwegian fluently. Highest of references furnished. Address 225, care of this office.

FOR SALE, NORTH DAKOTA UNOPPOSED PRACTICE

An unopposed general practice, established sixteen years; prosperous community; collections over $4,000 cash last year. Inland town, good school, churches and bank. Nearest doctor fifteen miles. Free house rent. County physician and insurance appointments transferable. Will sell at sacrifice office equipment and drugs and thoroughly introduce. Going to specialize. Address 226, care of this office.

OFFICE WANTED IN MINNEAPOLIS

A physician now located in the Masonic Temple wishes to obtain, with another physician or a group, an office in a modern down-town building. Address 222, care of this office.

DENTIST WANTS OFFICE WITH PHYSICIAN

A Minneapolis dentist wants to share an office in the Minneapolis loop district with a physician. Address 227, care of this office.

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FRACTURES OF THE ELBOW: A CLINICAL TALK*

By F. E. Clough, M.D.
Chief Surgeon, Homestake Mining Company
LEAD, SOUTH DAKOTA

It is my purpose, at this time, to discuss the subject of recent fractures of the elbow, a type of injury which produces much permanent disability to the patient, which gives great concern to the doctor in attendance, and which is responsible for a great number of medicolegal cases.

If a person falls upon the outstretched arm, where is a fracture most likely to occur? Immediately there will come to your mind numerous instances of Colles' fracture which have happened in this very manner. However, the answer to this question must be twofold, depending upon the age of the individual. If it is an adult who has fallen, the chances are strongly in favor of a Colles' fracture; if a child, the fracture will most likely be in the neighborhood of the elbow. Therefore, the rule can be laid down that a fractured elbow in a child is almost always due to indirect or transmitted violence, while the same type of injury in an adult is usually due to violence applied directly to the elbow region.

In view of the fact that the majority of fractured elbows occur in childhood and the lesion usually involves the condyles, this paper will deal, almost exclusively, with that type of injury.

There is nothing new to present in the diagnosis of this injury. Suffice it to say that very slow, careful, painstaking examination should be made of the injury. If one goes at this work rapidly and roughly, hurting the patient with the first movement, the child immediately loses confidence in the doctor, the muscles become contracted, nothing is gained, and it becomes almost impossible again to examine the elbow without the aid of an anesthetic. On the other hand, if the uninjured elbow is first examined, determining the bony landmarks and the range of motion, the patient's confidence is immediately gained, and it becomes possible to manipulate the injured arm without distressing the patient.

If it is impossible to make a diagnosis in this manner, a general anesthetic should always be administered and a most thorough examination made. Even then, it is not always possible to be certain of the pathology, in which case the injury should be classed as a fracture and so treated.

In very small children it is often difficult to diagnose a fracture by the *x*-ray, because the condyles and epicondyles remain cartilaginous for the first few years and do not show in the picture. However, if both elbows are *x*-rayed and carefully compared, one can usually detect any abnormality.

There are two points in the anatomy of the lower end of the humerus which must always be

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*Presented at the Fortieth Annual Meeting of the South Dakota State Medical Association, Aberdeen, S. D., May 24 and 25, 1921.

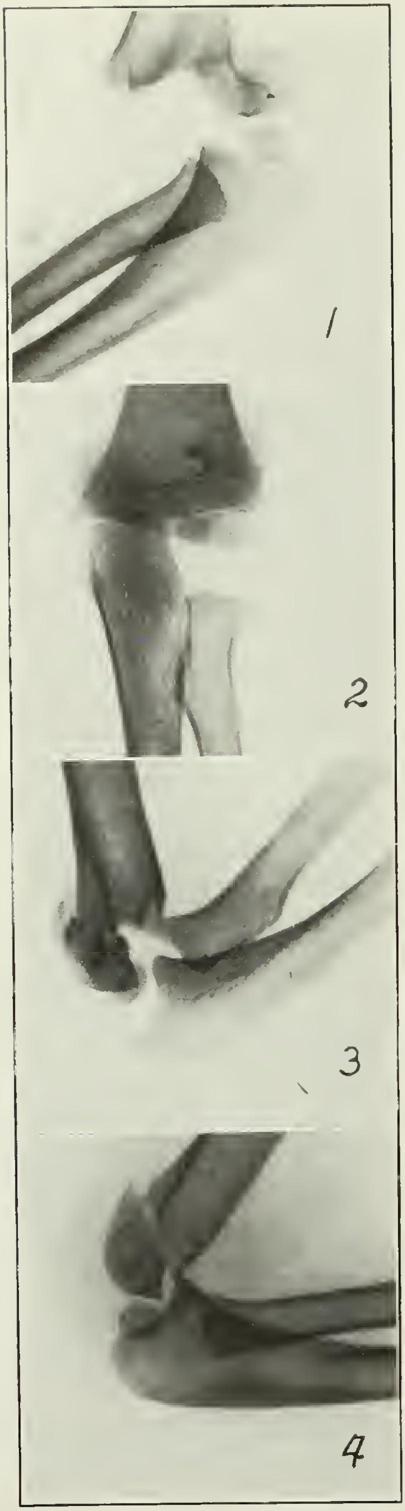

Fig. 1. Fracture through condyles before reduction. Lateral. (Parkoff boy, aged 7.)
Fig. 2. Anteroposterior.
Fig. 3. First reduction. Incomplete. Jones' position.
Fig. 4. Second reduction under anesthesia. Good anatomic reduction, Jones' position.

remembered. The first is that the inner condyle is placed at a lower level than the outer when the arm is parallel to the erect trunk. By this arrangement, the carrying angle is formed, which is a very important position to maintain after an injury. The second point is that the articulating surfaces of the humerus are fastened to the shaft of the bone at such an angle (130°) that they look forward and downward instead of directly downward, as is generally supposed.

Until the last few years, the universal method of treating a fracture of the elbow was to place it in a right-angled splint and keep it there for some time. As the deformity, in most cases, is a backward displacement of the lower fragment with a straightening out of the angle between the shaft and the articular surfaces, it can readily be seen, from the accompanying illustrations, that a right-angled reduction does not bring forward completely the lower fragment or produce the proper tilting angle to the articulations. Therefore, when incomplete reduction is secured, it is impossible to flex the arm completely, as the ulna prematurely strikes against the projecting point of the upper fragment.

While it is true that many fractures with poor anatomic replacement produce excellent functional results, yet it is also true that better functional results should be uniformly obtained, if the anatomic replacement of joint fragments could be perfected.

Recognizing the importance of more perfect anatomic reduction, Sir Robert Jones, of Liverpool, demonstrated, several years ago, that, if an elbow after proper manipulation were placed in a position of acute flexion instead of at a right angle, the lower fragment would return to its normal plane and angle and would stay there, with no danger of slipping, if the arm were maintained in this position of complete flexion. There is no question as to the efficacy of this method in all fractured elbows in children and in practically all similar injuries in adults. The reason the small, lower fragment cannot displace itself in this position is because the tendon of the triceps muscle is stretched as a bow-string splint across the back of the fragment, firmly pressing the fractured surfaces together.

The method of reduction and dressing is as follows:

With the patient under primary ether, an assistant steadies the arm and shoulder. The operator, grasping the forearm in one hand and the region of the lower fragment with the other, extends the elbow to its maximum point and, at the same time, pulls very forcibly downward. These movements unlock and loosen the fragments. While still maintaining the pull, the fragments are moulded into shape and reduction completed by flexing the elbow as far as possible. In former years it was our custom to apply an acute-angled tin splint to hold the arm in this position. We now know that such an apparatus is both cumbersome and unnecessary. In its place we are now merely encircling the forearm and arm at the level of the wrist with a strip of two inch adhesive plaster, which keeps the forearm flexed and is sufficient for all purposes. No effort is made to bandage the arm to the side of the chest, as shoulder motions do not endanger the reduction and the comfort of the patient is much greater with a free arm.

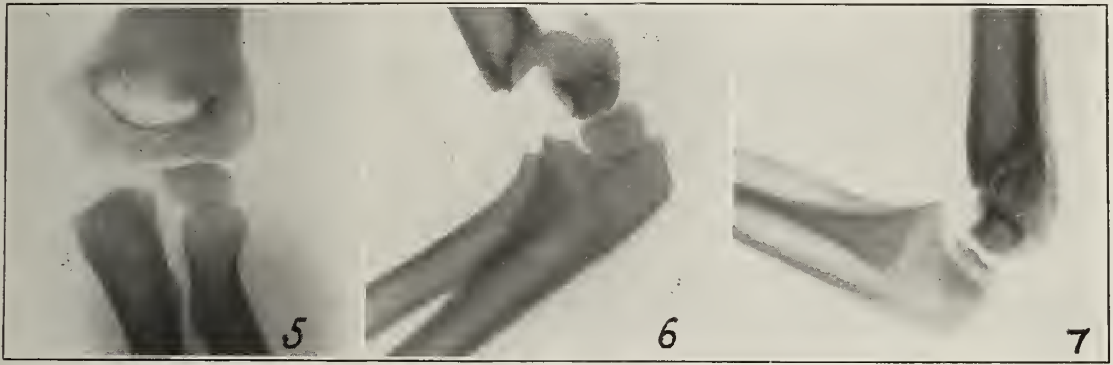

Fig. 5. Fracture through condyle, unreduced (B. Rosevear, aged 7.)
Fig. 6. Lateral view. Reduction under anesthesia. Right-angled position. Incomplete reduction.
Fig. 7. Reset under anesthesia. Acute flexion, not complete. Jones' position. Good anatomic results.

The elbow fold is well powdered to prevent maceration of the skin, and the injury is inspected, without loosening the adhesive, every day for the first three days, to see that swelling does not interfere with the circulation. If the swelling becomes pronounced, of course the plaster must be cut and the forearm lowered until the circulation is improved.

When should motion be first instituted? We do not belong to that class of surgeons who think that joint fractures should be moved the day after reduction has been completed, nor, on the other hand, to that group who think no motion should be given until solid union has been secured. It has been our plan to leave this injury untouched for ten days or two weeks following reduction, at which time the adhesive strips are temporarily taken off and active motion permitted as far as can be obtained without much pain. From then on, for another two weeks or even longer, the adhesive strips are removed every other day and active motion instituted. At the end of three and a half or four weeks, all dressings are removed and the patient encouraged to use the arm as much as possible. Carrying loaded pails, sawing wood, and the use of various exercises are encouraged. We are certain that heat and massage applied to the joint during the time the dressings are being temporarily removed and continued until motion has been secured, hasten recovery.

Passive motion is being used less and less in our service, for it frequently sets up an inflammatory reaction from broken adhesions, which retards, rather than hastens, recovery. The application of one of the various forms of arm apparatus in which is incorporated some form of turn-buckle or constant rubber pull will accomplish more in stretching adhesions than any effort on the part of the operator at one sitting.

How great a range of motion should be expected as a final result? In a child almost complete flexion and extension will be ultimately secured. On the other hand, complete range of motion rarely returns to an adult. It is our custom, when treating a fractured elbow in an adult, to tell him, as soon as reduction has been completed, that when the fracture is healed, if the range of motion is sufficient to bring the hand to the mouth in flexion and to place it in the trouser pocket in extension, he has secured a satisfactory result. Any motion beyond these points is just that much better than the average result.

If a conservative prognosis is given immediately after the injury is received, and the patient made to understand that a bone broken near a joint is never as good as an unbroken bone, there will be many less misunderstandings between patients and doctors, and the grounds on which to base a malpractice suit will be much weakened.

Finally, may I again impress upon your minds that a good functional result is the final test of satisfactory fracture treatment, even though the anatomic replacement may have been imperfect or incomplete?

CEREBRAL SINUS THROMBOSIS, WITH PSYCHOSIS, HEMIPLEGIA, DEATH, AND AUTOPSY*

By W. A. Jones, M.D.

MINNEAPOLIS

The patient who is the subject of this report was a woman, aged 47. Her father died when between the age of 75 and 80 years; her mother died of senile pneumonia. She has three brothers and one sister; one brother died of "railroad kidney." She has two living children, and has never had a miscarriage, nor has she lost a child. The family history is negative, nor can we determine whether she had the usual exanthematous diseases of childhood. She had pleurisy at seventeen, but made a good recovery. She had no disorder of her pelvic organs, and there was no discoverable lues, as proved by both the spinal and blood Wassermanns, which were negative.

In the early part of the year 1919 this patient began to complain of pain in her left leg, beginning at the sciatic notch and extending throughout the course of the nerve. On March 19, 1919, she was operated on at Rochester, Minnesota, and the report is as follows: She had a chronic catarrhal cholecystitis with partial destruction of the mucosa, marked trabeculation and markedly thickened walls; brownish viscid bile; cholelithiasis (many gall-stones). The appendix likewise showed evidence of a chronic inflammatory process. The stomach, duodenum, and pancreas were negative at the time of the operation. She left the hospital with a healed wound, and in good condition, on the seventh of April, 1919.

In spite of the fact, however, that she recovered from her operation, there were other things that more or less handicapped her,—probably the conditions at the menopause. She became very easily exhausted, had backaches and headaches, and her menses became irregular. During this entire time, covering at least a period of two years, the patient would frequently fall to the floor or to the ground on account of a sudden giving way of her left leg, the same side upon which she had the sciatic pain. Her husband said these falls were of frequent occurrence; that sometimes when she was dancing, or walking on the street, the left leg would suddenly give way. There was no loss of consciousness attached to these attacks, and no convulsive movements; and she had immediate return of power as she picked herself up as one would after any fall.

In July, 1921, she had a transient hemiplegia on her left side, with aphasia. This condition lasted for a few hours only, and she had a complete restoration of her leg power and a return of her normal speech; and the attack in itself was not a complete hemiplegia nor a complete aphasia. The sciatic pain continued during the year 1921. About the fifteenth of August she first showed her depression, or the first evidences of her psychosis were noticed by her family. (She may have been depressed long before that without attracting attention.) This depression was quite noticeable during a visit she made to a member of the family, when she suddenly conceived the idea that she must go home at once and was driven home, a distance of 160 miles, in order to gratify her wish. Shortly after her return to her home she heard of the drowning of a boy in the lake near where she lived, and she immediately became suspicious or apprehensive that it was her son who was drowned, in spite of the fact that her son was with her; but this delusion lasted for only a few days, when she finally gave it up for a suspicious phase of her psychosis, in which she was apprehensive of injury, and fearful of what might occur. She evidently developed, along with this, hallucinations of sight. She saw too many people, and the number of people continued to grow in her visual field; she saw objects on the wall, processions and glaring pictures which were in constant motion. She gradually developed bad-dream states, with fears of horror, great anxiety, fears of friends deceiving her: and she slept badly and seemed to be apprehensive of surgical operations. During this period in August she menstruated irregularly. Her depression became so extreme and her restlessness so marked that she was removed to a hospital on the seventh of September, and for the first day or two she seemed quite relieved and contented, thinking that she was in a place of safety or was being looked after by special nurses. She was in a dreamy delusional state, and thought she was being operated on every night,—the various parts of her body were cut off and restored before morning. Then she became more restless and excited, and was extremely noisy and sleepless on account of her fears and hallucinations of sight and hearing. Occasionally, she would be fairly clear, but it would not last more than a few hours.

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*Presented before the Hennepin County Medical Society, Minneapolis, November 7, 1921.

About the first of October her myocardium showed that it was failing; her heart was extremely rapid, 130 to 140, and required such stimulants as were indicated. At times she was quiet for the night, but usually she was extremely excited and extravagantly noisy. This condition continued with a gradual failure in her general appearance, in her expression and complexion, although, aside from her rapid heart, there was nothing of importance that was of any special moment until the twenty-third of October. She had been very clear the day before, October twenty-second, and seemed very much interested in the fact that some of the family were coming to see her, and she expressed herself as feeling very much better. But that night she was excessively noisy and did not sleep at all, even with an hypnotic. Early in the morning she developed a left partial hemiplegia which involved the face and left arm and, to a lesser degree, the left leg. There was a Babinski present in her left foot, and all of her deep reflexes were greatly exaggerated. She showed a difficulty and an inarticulation of speech, and her speech became more blurred as the day wore on. Her pupils were widely dilated; there was rapid breathing; injection of the cornea was noticed; and then she exhibited clonic contractions of the muscles of the left side of her face, her left hand (but not her arm), and occasionally these same rapid, clonic movements appeared in the right hand. She died the following day, October twenty-fourth.

An autopsy was made on the head only, as it was difficult to get a pathologist until too late to take her to her home, consequently there was no examination made of the viscera or the thoracic cavity. The autopsy was made by Dr. J. C. McKinley, of the Department of Pathology, University of Minnesota, report of which is as follows:

> Scalp and calvarium normal. There is a thrombus of the superior longitudinal, the left transverse, and the sigmoidal sinuses, down into the jugular vein. The cerebral cortical veins are involved, especially in the right brain, to a moderate degree. In the right hemisphere, particularly, can be found a few areas of softening around the thrombosed veins with petechial hemorrhages on the cut surface. No other abnormalities can be determined grossly in the brain. The middle ears, the sphenoidal, ethmoidal, and frontal sinuses are normal. The pituitary is normal.
>
> Diagnosis:
>
> 1. Sinus thrombosis.
> 2. Thrombosis of cerebral veins.
> 3. Slight encephalomalacia.

The few points presented for discussion are as follows:

First. The possible relationship between her gall-bladder infection in 1919 and the development of her thrombosis. It hardly seems possible that such a remote infection could have anything to do with the later developments, particularly her psychosis and hemiplegia. Most infections which cause sinus thrombosis are of recent origin and commonly are within the vicinity of the thrombosed area.

Second. The next point I wish to discuss is the relationship between this patient's attack of hemiparesis and her aphasia. There was nothing in the post-mortem findings that would lead one to suspect that she had an accumulation of pus or an inflammatory state of the sinus wall, and yet she had the symptoms which are occasionally found in spasm of the blood-vessels. It is quite possible to conceive that this case might have been due to a swollen or distended vein in the cortex, which relieved itself after a few hours and caused the disappearance of her hemiplegic and aphasic symptoms.

Third. The onset of her mental disorder may have been due to several conditions and among them the menopause and the conditions which followed her original gall-bladder operation. This may have preceded the nervous instability and may have been coincident with her mental depression, but they cannot be associated as cause and effect with much definiteness.

Fourth. The myocardial state, which was a part of her symptom group in the last month of her illness, perhaps, was due to her general excitement or extreme restlessness and the excessive muscular exertion which may have led to a terminal myocardial weakness. At all events, there was no evidence of an acute myocarditis from an area of infection.

Fifth. Motor activity with clonic spasms and the hemiparesis; these clonic convulsive movements of the left face and the left hand may have been due to the development of her venous state in the left brain, as well as to the thromboses which were found in the large sinuses. These venous states were not so situated as to be confined to the motor region entirely, but their proximity to the motor areas is sufficient to explain the development of the motor phenomena and the motor activities which she demonstrated.

Sixth. Character of thrombosis: It was not old, it was fluid in type and it evidently formed within a very recent period,—probably within twenty-four hours of her death; there was no attempt at organization, but a complete stasis in the longitudinal, lateral, and sigmoid sinuses on the left side. There was nothing to indicate, from the examination, that she had an infection of the sinus or of the thromboses.

Seventh. The theories which one might discuss are the mechanical condition and changes in the blood, which doubtless occur during the menopause, and the decline in the endocrine activities.

The case reported here evidently belongs to the marantic type of thromboses. It is commonly of primary origin and occurs in people who have been ill, either suffering from exhausting diseases or prolonged illnesses which cause weakness of the heart, and it is found in such things as diarrhea, typhoid fever, pneumonia, tuberculosis, cancer, malaria, and the anemias. The marantic type, too, usually involves several sinuses and their tributary veins. Keeping in mind the fact that the flow of blood through the sinus is slow in comparison with the circulation through the arteries, the various ramifications of the sinus toward a central bloc, the torcular, would explain the lack of drainage in the territory involved, which would produce a localized edema with punctate hemorrhages, and, if the patient lived long, red softening. All these may occur within the cranial vault and show no edematous states outside. The diagnosis of a marantic case of sinus thrombosis is usually confused with other brain disorders because it has no symptom complex, except that there may be disturbed brain functions, disturbances of the motor centers, tremors, or paralyses; and in most of the literature no mention is made of the probable psychosis which may accompany a marantic hemorrhage. While this may be true, the inflammatory thrombosis from infective states is usually and commonly associated with mental disorders. The following is the table of differentiation given by Macewen[1]:

MARANTIC

1. Chiefly affects the longitudinal sinuses.
2. The clots tend to organization or are absorbed.
3. Hemorrhages into cerebral cortex in about half the cases.
4. Tendency to produce brain softening.
5. There is seldom purulent infection as a sequence.
6. No accompanying leptomeningitis, cerebral or cerebellar abscesses.

INFECTIVE

1. Chiefly affects the paired sinuses.
2. Clots tend to purulent disintegration.
3. Hemorrhages into brain or cerebellum seldom occur.
4. No tendency to brain softening.
5. Purulent infection common from septic or infective emboli.
6. Often coincident purulent leptomeningitis, cerebral or cerebellar abscesses.

Here it will be seen that no mention is made of psychoses, but in both instances hemorrhages into the cerebral cortex are found.

The local symptoms vary with the sinus involved. In thrombosis of the lateral sinus, dependent upon middle-ear disease, there is usually a venous congestion and edema over the mastoid process, and the thrombus may extend into the jugular vein and be palpable. Cavernous sinus thrombosis, owing to the drainage of the ophthalmic vein backward into this sinus, produces quite characteristically marked exophthalmos, venous congestion and edema of the lids, chemosis, together with choked disk, retinal hemorrhages, oculomotor palsies, dilated immovable pupils, involvement of the fifth nerve, with hyperesthesia in its area of distribution. Involvement of this sinus rarely remains unilateral, but soon becomes bilateral by spread of the affection by way of the circular sinus. In longitudinal sinus thrombosis in distended fontanelles (in children), nosebleed, caput medusæ, and swelling of the frontal and parietal veins are the chief local symptoms.[2]

The most common of cerebral thromboses are from mastoid suppuration; and to illustrate that I find one case of chronic middle-ear suppuration, cholesteatoma, and mastoiditis, complicated by labyrinthitis, sinus thrombosis, and meningitis,[3] with a history of suppuration of the right ear, of long years standing, dizziness and vomiting, and development of a left hemiplegia. The mastoid was opened, a lateral sinus thrombosis and a partially organized clot were found, and there was a large extradural abscess of the posterior fossa. The patient died five days after the operation, and the author of the paper thought the meningitis, the jerking of the hemiplegic side (face, arm, and leg), and the probable cerebral meningitis were not a commonly found pathological state. Under the title of "The Diagnosis of Sinus Thrombosis," A. Braun[4] presents the following: "The symptoms of *infectious* sinus thrombosis (the *non-infectious* type is rare) may be divided into those which are due to the *general* systemic poisoning, and those which are due to the local inflammatory lesion in the affected sinus. The latter (due to local lesion in the sinus) may be divided into (A) those which are caused by the inflammation in the sinus wall, and (B) those which are the result of obstruction to the venous circulation, caused by the thrombus.

A. Symptoms due to the inflammation of the sinus wall, in infectious thrombosis of the *lateral* sinus:

"1. Pain: In most cases of sinus thrombosis, there is little or no pain. In fact, euphoria is rather characteristic of sinus thrombosis. When pain does occur, it may be in any part of the head. It is not necessarily localized about the region of the lateral sinus.

"2. Optic nerve changes: These occur in only a moderate number of cases. The pathological lesion is usually a neuritis, or a hyperemia. The optic nerve changes are usually unilateral, but they may be bilateral. When unilateral, they are ordinarily on the side of the affected sinus. Marked visual disturbance is uncommon. Recovery from the nerve condition usually takes place if the patient gets well of the sinus thrombosis. Optic atrophy is rare.

"3. Paralysis of the 6th nerve, usually unilateral, occurring on the side of the affected sinus. It causes convergent strabismus, diplopia, and inability to move the eye outward. This sometimes occurs with sinus thrombosis, and in all probability is due to the accompanying meningitis. Paralysis of the sixth nerve sometimes occurs in uncomplicated mastoiditis and even with acute middle-ear suppuration. A sixth nerve paralysis occurring with a middle-ear suppuration, with or without mastoiditis, constitutes the so-called Gradenigo syndrome.

"4. Perijugulitis: The inflammation may extend to the perijugular connective tissue and the lymph glands surrounding the vein. When this occurs, a tender cord-like mass can be felt at the side of the neck, along the course of the internal jugular vein. Movements of the head are painful, and there may be some pain in swallowing. The inflammation may extend from the jugular bulb to the nerves which pass through the jugular foramen, i.e., the glossopharyngeal, pneumogastric, and spinal accessory nerves.

"5. Involvement of the glossopharyngeal nerve: This may cause paralysis of the soft palate and difficulty in swallowing. Difficulty in swallowing may also be caused by the inflammation of the tissues around the internal jugular vein in the neck.

"6. Involvement of the vagus nerve may give rise to hoarseness and slowing of the pulse rate.

"7. Involvement of the spinal accessory nerve may cause spasmodic contractions or paralysis of the sternomastoid and trapezius muscles.

"B. Symptoms due to interference with the venous circulation, in infectious thrombosis of the lateral sinus.

"1. Griesinger's sign: Painful swelling at the point of exit of the mastoid emissary vein from the skull. Not diagnostic of sinus thrombosis.

"2. A painful swelling in the posterior triangle of the neck. Not diagnostic of sinus thrombosis.

"3. Gerhardt's sign: Unequal fullness of the external jugular veins on the two sides. Not a reliable sign.

"In *thrombosis* of the *cavernous sinus*, the symptoms due to the local inflammation in the sinus are:

"1. Pain.

"2. Optic nerve changes.

"3. Paralysis of the third, fourth, first division of the fifth and sixth nerves. Paralysis of the third nerve is present in almost every case of cavernous sinus thrombosis. It comes on fairly early in the disease, usually within a day or two of the onset of the exophthalmos. As a result of third-nerve paralysis there are ptosis, divergent strabismus, inability to move the eye inward beyond the median line, limitation of movement of the eye upward, inability to move the eye downward, and dilatation of the pupil. When there is involvement of the fourth and sixth nerves in addition to the third nerve, there is ptosis, the eye is fixed in the median line, with inability to move in any direction, and there is dilatation of the pupil. When the first division of the fifth nerve is involved, there is neuralgic pain or anesthesia in the area of distribution of this nerve, i.e., in the supraorbital and infraorbital regions.

"The *obstructive* symptoms in *thrombosis* of the cavernous sinus are:

1. Exophthalmos.
2. Chemosis.
3. Edema of the lids.
   (These occur in every case of cavernous sinus thrombosis.)
4. Edematous swelling in the pharynx occurs occasionally.

"The general symptoms due to thrombosis of the venous sinuses of the dura mater are the same, irrespective of the location of the thrombus. They are:

1. Temperature—very high. 105° is common.
2. Chills.
3. Sweats.
4. Rapid pulse.
5. Gastro-intestinal symptoms: Heavily coated tongue, anorexia, constipation or diarrhea, vomiting in some cases.
6. Vertigo: Not common.
7. Disturbances of the sensorium are rare in sinus thrombosis, except shortly before death. When there is delirium or coma, the sinus thrombosis is usually complicated by meningitis.
8. Metatases may occur when the course of the disease is more prolonged. They are then most common in the lung. Next most common in the joints."

These cases illustrate sinus thrombosis from nearby infected areas and which are clearly due to an infection. Numerous other cases might be cited from middle-ear or labyrinthian disease, but they are not the same type or character of cases that I have cited, that is, they do not belong to the same category.

Case 3. Report of a case of bilateral thrombosis of the lateral sinuses, not originating from otitis,[5] is that of a man who was an incessant swimmer and high-diver during the summer months. He occasionally had colds and frontal headaches. Diving was done in rather stagnant and contaminated bodies of water, but never in a public tank. Patient complained of severe frontal headache. It became evident on examination that he had an involvement of the frontal, ethmoid, and maxillary sinuses, for which he was drained. There were a free flow of pus and frequent remissions of symptoms. This man had a large frontal abscess. He developed cord-like soreness of the right side of the neck muscles, and he had metastatic lung involvement. The abscess drained itself and was followed by discharge of dark blood instead of pus at the end of three weeks. Death occurred on the twenty-seventh day, post-operative. There was found a complete and organized thrombosis of the right lateral and sigmoid sinuses extending down into the jugular, and an incomplete, organized thrombosis of the left sigmoid sinus and jugular. The author reports this case because of the rarity of thrombosis of the sigmoids and jugulars from any other reason than contiguous infection from the middle ear or mastoid. Most of these cases are of the traumatic type or occur in eclampsia, chlorosis, or may be the outcropping of a purulent condition in the cervical region, as it has been noted that these conditions are sometimes the cause of such thromboses.

Case 4. "Two cases of lateral sinus thrombosis without otorrhea," is that of a woman, aged 20, who was seen by Dr. R. E. French, on July 18, 1920. Three to four weeks before, the patient had pharyngitis, (?) influenza. For the last fourteen days, deaf in the left ear, and earache: no pus from the ear; for the last ten days great pain all over the left mastoid and occipital region. Temperature high, 104° F., on several occasions No rigors.

This patient was finally operated on, with the following comments: Granulations in antrum, and a line of granulations led backwards and upwards to the lateral sinus; on the sinus and wall collection of pus; wall resistant. Sinus opened backwards till bleeding met with at the junction with the superior petrosal sinus; internal jugular ligatured. Two days later, re-operation, as the temperature continued high; sinus found thrombosed one and a half inches farther back; clot turned out and groove plugged as usual. Recovery.

The second case reported by the same author was that of a boy who had earache but no otorrhea, but he had some pus in the mastoid. The first operation seemingly did no good. The wound was re-opened and the lateral sinus exposed, and between the lateral and the sigmoid sinuses an extra-dural abcess was found. This case resulted in recovery.

Other cases are reported where there is a low-grade infection of the middle ear without very much discharge, but sufficient to make a diagnosis of an otitis. These cases are not infrequently followed by the development of thrombi and they pursue a very erratic course. These are the cases that are operated on and not infrequently very successfully, but they, again, are very different from the case which the writer has in mind.

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DISCUSSION

Dr. A. R. Colvin (St. Paul): Some fifteen years ago I was asked to assist at a head operation in the case of a young woman upon whom a diagnosis of brain tumor had been made. At the time of the operation she was mentally unusually bright. She had suffered from intense headaches for about one year, and was totally blind. The blindness had come on gradually. At exploration nothing was found. The patient was relieved for a short time and then began to suffer again, and it was decided to explore again on the other side of the head with a very large flap. The bleeding was so great at the time that the girl practically died on the table from hemorrhage from the diploic veins. At autopsy no gross pathology of the brain itself was demonstrable, but the longitudinal, the two lateral, the sigmoid, and the occipital sinuses were found to be obliterated and represented by fibrous cords except here and there where a tributary vein entered, and in these areas a small space remained.

The first interesting thing was that this girl was not mentally disturbed at any time. On the other hand she was particularly bright. The second interesting point was the gradual and increasing blindness with finally total blindness and great headaches. The third interesting point was the tremendous bleeding at the time of operation, due of course to the collateral venous circulation through the bone.

I wish also to report a case of infectious sinus thrombosis as showing the relationship between blocking of the cerebral sinuses and disturbance of cerebral function.

A boy, aged four years, who had been ill for some time with enteritis, developed a left-sided suppurative mastoiditis. The mastoid was operated on with subsidence of the symptoms. About a week later symptoms of mastoid trouble on the right side were noticed, and a suppurative mastoiditis operated on. The temperature, which was 104°, continued, however, and some days later the right sigmoid sinus was opened up, but no pathology was demonstrated. The child's condition became progressively worse. The temperature remained high and irregular. Suddenly the temperature dropped to nearly normal. The pulse became less frequent, the child became unconscious, the head retracted, and the pupils widely dilated with no light reflex present. After numerous consultations the consensus of opinion seemed to be that meningitis accounted for his symptoms. These did not, however, conform to the symptoms of meningitis as I had observed them, following mastoid infection, and I was quite sure that exploration for brain abscess would prove fatal under the circumstances. Shortly a swelling in the upper right neck and a red streak along the direction of the great vessels to the clavicle, seemed to indicate jugular thrombosis. An operation for this condition was undertaken. A clot was found extending from the left sigmoid sinus (the side first operated on) to the subclavian vein. The clot was removed and the vein excised; recovery followed. The eyesight was restored. The boy is now mentally normal and bright. The facial veins have always stood out prominently. He had an operation for adenoids some years later, and the bleeding was alarming. I suppose the bleeding was due to the collateral channels being dilated. In this case, as in the one just reported, there had been no permanent interference with brain function as a result of bilateral blocking of the sigmoid sinuses.

This case and the two following ones emphasize again, as it has been emphasized by McEwen in the book on "Pyogenic Diseases of the Brain and Spinal Cord," written many years ago, the necessity for hopefulness and a running attack as pathology develops in any case of mastoid infection.

The next case was a young man thought to be beyond relief from pyemia as evidenced by a suppurating knee-joint and several muscular abscesses. He was delirious. In a search for the cause of his pyemia, it was discovered that he had a suppurating otitis media with tenderness over his mastoid and along the course of the great vessels in the neck. The jugular vein was first exposed and found to be obliterated at about the middle of its course. On opening the vein above this point it was found to contain pus, and this extended up to the sigmoid sinus. After finishing the mastoid and sinus operation, the knee-joint and numerous muscular abscesses were opened. Recovery followed.

The last case I wish to report is that of a young woman, seven months pregnant, with mastoiditis, septic sigmoid sinus thrombosis, and pneumonia with empyema. The mastoid sinus and empyema were drained. Recovery followed, and a living healthy child was born at term.

THE FOOD DEFICIENCY DISEASES OF CHILDREN*

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We often hear the expression that it is every person's inherent right to be well born. It is equally the right of every infant to be well fed, for the child is totally dependent upon its caretakers for the maintenance of its life. If we do not teach the mother and attendants the proper nutritional care of her new-born infant we are derelict of duty and open to the charge of permitting the institution of incorrect feeding methods which will lead to a series of nutritional disturbances that will have serious consequences.

The practice of pediatrics differs markedly from that of any other branch of our profession in the tremendous responsibility involved in it. With the adult patient there is the power of will and the exercise of his reason to take into account, so that he has a choice in the matter of the treatment accorded him. Not so with the infant, who is totally at the mercy of his attendants.

I think no branch of medicine has been so flagrantly abused as that of the feeding of infants, nor is there any other field where more progress has been made within the last few years. There has been too much complacency exhibited in the face of the fact that 75 per cent of infants who die, perish from gastro-intestinal disturbances. It is not so much my purpose to discuss the diagnosis and treatment of the food deficiency diseases of childhood as it is to point out their cause and make a plea for the more careful study of infant-feeding.

There are two prime factors that have been principally responsible for most of the malfeeding of infants. The first is the complicated manner in which artificial infant feeding has been taught in Eastern medical centers. The so-called percentage method has been a menace, in that it is so complicated that the general practitioner has been compelled to throw it over and turn to the easy though dangerous practice of giving prepared foods. This, of course, is a matter of jumping from the frying pan into the fire, for no physician who has given the subject of infant-feeding serious study is willing to take the hazard of feeding a baby any proprietary food. Fortunately, within late years, men like Brenneman and Abt, of Chicago, together with other pediatrists of the central West, have so simplified and improved the methods of feeding infants that we may hope for better things in the future.

Shortly after birth a great many babies are introduced to a series of nutritional insults that would make their career short-lived were it not for their stored up food elements and their power of adaptation. The sooner every physician who treats children comes to realize that mother's milk is intended for her baby, the sooner he will cease passing over lightly the excuses given by modern mothers who shirk the duty they owe their offspring. He will tell the mother that there is no substitute for mother's milk and that the statement of any mother that her milk does not agree with her baby is never true. Any apparent incompatability in this respect is due to faulty technic of nursing or lack of information regarding the preparation for this function. In this connection we may mention the baby who has colic. We are told that some breast-fed babies have colic in spite of any nursing technic employed, and this is given as an excuse for weaning the baby. In the first place, colic is not a serious affair. All colicky babies gain in weight, and the giving of a simple anodyne controls the situation. To be sure, the nursing interval is first lengthened, and we have made sure the baby is not being overfed. Dr. Shannon, of St. Paul, has found that infants are frequently sensitized to foods in the mother's dietary, and the removal of these foods from the mother's diet clears up the colic.* The only contra-indication to maternal nursing is tuberculosis in the mother or a condition where the baby's nursing would seriously impair the mother's health.

The second insult given to these babies is when the mother does not have a sufficient supply of milk for her infant and the child is given a bottle between nursings. This is the most successful way of weaning a baby that one can possibly think of. The baby quickly learns that it can get the milk more easily from the bottle than from the breast, with the result that it finally refuses the breast entirely. With the lessening demand upon the breast, less milk is secreted, and eventually we have a bottle infant. Every mother must be taught that the greater the demand upon her breast the greater will be the supply. The breast must be completely emptied at each nursing, as this is the most potent stimulation to lactation. The baby should never nurse a part from each breast unless the rest of the milk is immediately pumped out. Illustrating the capacity for lactation where this principle is carried out is that of a wet-nurse who was tested out by Dr. Alan Brown, of Toronto, to see how much milk she could produce. One baby after another was given her until she was supplying nine infants, and the only reason she did not take on more was the lack of time in the twenty-four hours for nursing. If the mother is taught during her pregnancy that she will be able to nurse her baby, she will be looking ahead with the expectancy of doing so and will let no small obstacle prevent her.

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*Archives of Pediatrics, December, 1921.

The next maltreatment given many infants after being taken from the breast for some reason, fancied or real, is putting them on some proprietary baby food, whose name is legion. Right here is the first step toward one or more of the food deficiency diseases. The reason it is malpractice to put an infant on any proprietary food is that they are all deficient in one or more of the vital food elements. Practically all of the so-called baby foods are high in their carbohydrate content, with the result that a baby taking them frequently looks fat and well-nourished. This is caused by the body tissues being filled with the excess of water needed to dilute the high sugar content. When any parenteral infection hits one of these babies it has no power of resistance and is rapidly carried away. This accounts in many cases for the fat baby's high mortality in pneumonia and other infections. If the mistake has been made of taking the baby from the breast, and there is no other mother's milk available, then our only alternative is the use of modified cow's milk. In making this statement I am reminded of a physician who told a mother that cow's milk was intended for calves, and so he put her baby on "Owl Brand," or perhaps it was some other bird. I grant the statement regarding the intended use of cow's milk, but cannot help wondering by the same reasoning if "Owl Brand" is not intended for young owls. This preparation, alike with all others of their kind, is a modification of cow's milk and other added substances, but all lacking in certain growth elements. For this reason none of them should ever be prescribed as a food.

The first of the food deficiency diseases, which we shall only briefly mention, is tetany. This usually follows a fermentative diarrhea due to overfeeding with carbohydrates. The patient presents a picture of a varying degree of dehydration and loss of tissue turgor. The former is determined by picking up the skin, and it feels dry. When you let go of it, it fails to snap back, but remains in a ridge for some moments. Loss of tissue turgor is noted by the deeper tissues having a doughy feel due to the loss of fluids from the tissues. These infants are always spastic and have a history of malfeeding. When the intercellular tissues lose their fluid the salts of potassium and sodium are relatively increased in the tissues. Since these are the irritant salts they give rise to tetany. The baby with laryngismus and frequent crowing is characteristic. Carpopedal spasm and a positive Chvostek are pathognomonic. The latter sign is elicited by tapping over the facial nerve, which causes a contraction of the facial muscles of that side and those of the mouth. These with the electrical reactions, c.o.c., or the c.c.c., less than 5 milliamperes, makes the picture fairly complete.

The treatment consists in giving 20 grains calcium lactate every four hours. Magnesium sulphate hypodermatically and 5 per cent glucose intraperitoneally will build up the body fluids and counteract the irritation due to the salts mentioned until the baby can be put on a formula that it will tolerate and get back to normal. The specific food element lacking in the spastic infant is known as the antineuritic or water soluable B vitamine. This element is found in leafy vegetables, such as beet tops and spinach; consequently, the addition of these as early as possible, even at an age much earlier than is usually done, is met with the most gratifying results. Last year in the clinic of Dr. Hoffman, at the Children's Memorial Hospital, Chicago, a number of babies that had shown a failure to gain over a period of six weeks were put on a milk, farina, and leafy vegetable mixture of a consistency that would go through a nipple with a large hole. In every case there was a prompt gain in weight which continued permanently.

Closely associated with tetany is rickets, the deficiency disease seen most frequently, especially in some localities. The etiology of rickets has long been a mooted question, especially as to whether it is primarily a food deficiency disease or one of hygiene, as well. I think we can rule out bad hygiene on the ground that whenever the diet has been corrected in rickety children they show improvement even though their environment remains the same. It is agreed that the growth element lacking in this disease is vitamine fat soluble A. This element is found in dairy products, slightly in vegetable oils, but principally in cod liver oil. Of note is the fact that fat soluble A foods are of a yellowish color, as butter, carrots, and sweet potatoes.

The most characteristic changes in rickets are shown in the flaring ends of long bones. This is most marked at the wrist, ankle, and knee, and least marked at the elbow. The cause of the rachitic rosary is due to the enlarged epiphyses of the ribs. Rachitic bones are short and broad in contradistinction to osteogenesis imperfecta, where the bones are long and thin and have normal epiphyses. The latter disease comes on directly after birth, while rickets is a later development. Where a child has repeated fractures and the *x*-ray shows bowing of the bones and the sites of previous multiple fractures, we need to remember that these are not cases of rickets, but of osteogenesis imperfecta. Pathognomonic of rickets is craniotabes. This has erroneously been called a sign of syphilis; however, this is not true, but, whenever present, is always diagnostic of rickets. The treatment of rickets is simple. First, put the baby on a proper cow's milk formula and give foods of known antirachitic quality. Pure cod liver oil and direct sunlight daily are things that must not be forgotten.

Scurvy is perhaps the deficiency disease most often confused. Lack of growth element water soluble C is the specific cause. The early sign of scurvy is irritability of the infant. It cries out upon being moved. There is a failure to gain, and the baby lies with flexed knees and hips, the whole leg being rotated outward. This is quite characteristic. When you approach the child it cries out even before you touch it. There are no bony changes in scurvy as there are in rickets, but the *x*-ray reveals subperiosteal hemorrhages, disclosing varying amounts of extravasated blood under the periosteum. The gums bleed freely. All affected parts are exquisitely tender, but this is most marked at the ankle. Hemorrhages into the orbit cause the eye to protrude and give the general appearance following a blow, edema and discoloration being marked. The therapeutic test of giving orange juice is, of course, positively diagnostic. Within twenty-four hours the pain will be relieved and the symptoms begin to clear up. Scurvy has mistakenly been diagnosed as rheumatism, so, if you ever see a case of rheumatism in a patient under two years of age, remember, you can cure it with orange juice. Antiscorbutic treatment should be given all artificially fed babies, beginning at the age of one month. Begin with a teaspoonful of orange juice daily, and increase it rapidly. Orange juice is believed by the laity to have a laxative action, but this is not true, so it can be given irrespective of the condition of the bowels. Tomato juice also has marked antiscorbutic properties and, being much cheaper than oranges, can be used by those who cannot afford the latter. For babies over six months of age, potatoes, carrots, squash, and other vegetables should be given to full tolerance. Mothers must be taught that if their babies are to be free from nutritional defects, the daily giving of fresh vegetables will go a long way toward accomplishing this end.

THE SO-CALLED "MIXED TUMORS OF THE PAROTID"

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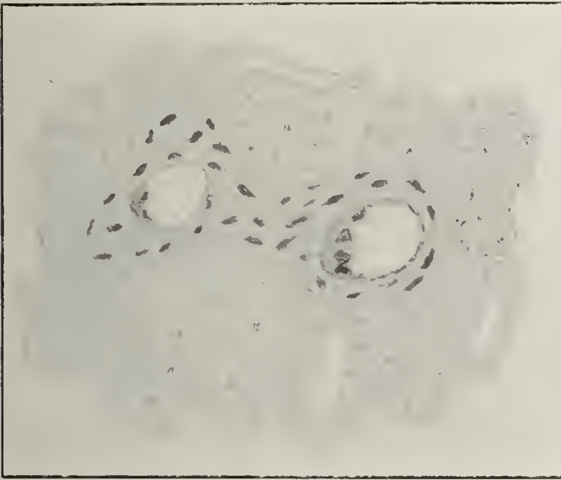
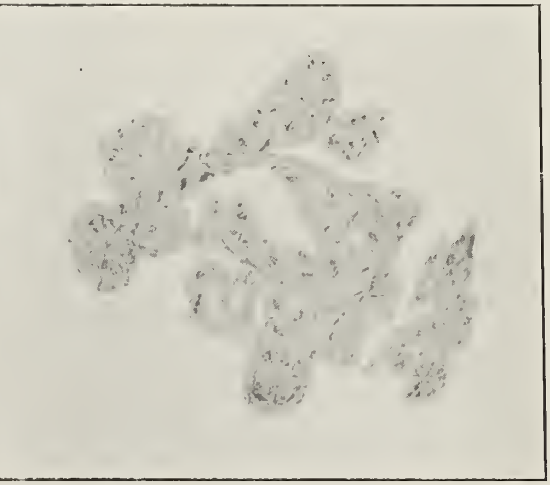
It is known that the parotid gland, more frequently than the other salivary glands, is the seat of tumor. Although fibroma, lipoma, chondroma, primary adenoma, and carcinoma are very rare, particular tumors, on the contrary, are formed with some frequency. Pathologists are not agreed on the nature of these so-called *mixed tumors*. According to Landsteiner they are of epithelial origin (they may contain concentric cellular formations similar to epithelial pearls); on the contrary, Volkmann considers these tumors as endotheliomata. Marchand and Wilms believe that the mixed tumors are to be considered as analogous to the teratomata, except that the embryonic rudiment is separated at a later stage. (MacCallum.[1]) These very brief premises on the so-called "mixed tumors of the parotid" show, then, that authors are not agreed on their exact nature. The difficulty is increased by the fact that some discordance exists as concerns the cells which are to be considered endothelial. Indeed, if all the authors are agreed that the lining cells of blood and lymph vessels are to be considered endothelium, many are still at variance on the cells which line the pleura and the peritoneum. Ribbert, for instance, and many other authors consider these cells as epithelial cells, not endothelial. For this reason MacCallum's conclusion concerning endothelioma is, "In practically no case has the origin of a tumor from endothelium been proven." (MacCallum.[2])

From the facts stated it is apparent that the study of "mixed tumors of the parotid" is not completed. For this reason we think that the two cases reported in this article are not only interesting, but probably will bring some additional light on the solution of the problem of their nature and van Gieson's stain.


FIRST CASE
Endothelioma arising from an artery in the parotid gland.


FIRST CASE
Endothelioma from parotid gland. (Beginning.)

The tissue of the tumor was fixed in a solution of formalin, and stained with hematoxylin and eosin.

HISTORY OF THE FIRST CASE

Physician: Dr. R. E. Weible, Fargo, North Dakota.

Patient: Mrs. G.

Clinical diagnosis: Parotid tumor (believed to be mixed tumor of the parotid).

Tissue involved: Parotid.

Duration of process: Several years, slow-growing tumor.

Gross appearance of tissue before removal: Limited tumor projecting well out from the parotid, and very adherent.

Gross appearance of tissue after removal: Tumor appeared encapsulated. The cut surface of the tumor was of a whitish color, with a moderate consistence.

On microscopical examination of the tumor, large masses of the tumor were found interspersed with the normal substance of the gland. These cells had a rounding shape, and were formed with a round nucleus, surrounded by a small amount of cytoplasm. The cells of the tumor, then, appeared similar to those that form the so-called large, round-cell sarcomata, which, as is known, show some resemblance to some forms of carcinomata. (MacCallum[3].) But, among the cells lay a very scanty amount of delicately fibrillated intercellular substance, a fact which speaks for a tumor originating from connective, and not epithelial, tissue.

The history of the patient reveals that no tumor was found in any other part of the body, hence the tumor of the parotid should be considered as primary. Although a carcinoma (primary carcinoma) may sometimes arise from the parotid, no author has hitherto described a *primary sarcoma* from this gland. A careful examination made as to the origin of the tumor demonstrated that it arose from the endothelium of the small blood vessels. Several of them, indeed, showed clearly all the stages of the change by means of which endothelial cells lose their characteristic appearance of endothelial cells to become cells of a tumor. The diagnosis of endothelioma was then certain, and explains each datum found in the study of the connective tissue tumor. It explains why it appears to be of connectival origin, as the sarcoma, although such a primary tumor of the parotid gland has never before been described. Indeed, endothelioma has in common with sarcoma the connective tissue origin, but the former, on the contrary to the latter, arises from the endothelium of blood vessels; moreover, endothelioma shows a different course from that of sarcoma,—a fact which is very important for the prognosis of the patient.

HISTORY OF SECOND CASE

Physician: Dr. W. H. Witherstine, Grand Forks, North Dakota.

Patient: Ole Johnson, aged 66.

Clinical diagnosis: Mixed tumor of the parotid gland.

Tissue involved: Parotid gland.

Duration of process: Eight years.

Patient otherwise in excellent condition.

Gross appearance of tissue before removal: Small nodule growing in region of the parotid. Parotid was partially removed eight years ago, but nodules return about every two years, consequently operation was repeated several times. No indications of tumor in any other parts of the body.

Gross appearance of tissue after removal: Tumor appeared formed of masses of tissue, whitish in color, of a moderate consistence, surrounded by large masses of adult connective tissue.

Microscopical examination of the tumor revealed a very marked increase of connective tissue, which limited irregular spaces for form and size; these spaces were filled with cells of an epithelioid form. These cells were grouped together in such an arrangement that at times they take on the appearance of the so-called "cell-nest" of epithelial tumors; at other times they were disposed in interwoven cords. However, the important fact remains, that between the epithelioid cells there were always some fibrillæ of connective tissue. Moreover, inside of the groups of cells there were almost always some relatively large blood vessels, which were made only by an endothelial coat. Such blood vessels have given origin in some parts to hemorrhagic infiltration. In some parts of the tumor we found few epithelioid cells in hyaline degeneration; in other parts we found a larger number of them. Moreover, in some parts, connective tissue appeared so developed that it is admixed with epithelioid cells, and it seemed to produce in them degenerative changes and atrophy. In conclusion, then, the gross and microscopical appearance of the tumor, its chronic development, and the fact that it has not produced metastases,—all these data concurred to establish the diagnosis of hemangiosarcoma, or endothelioma,[4] and, following the classification of these tumors done by Stengel and Fox,[5] we may call the tumor described, endothelioma. The origin of the tumor from the endothelium of the blood vessels did not appear as evident as in the first reported case; this probably being due to the fact that the tumor in the last reported case had arisen eight years ago, and, as a consequence of its long duration, the connection between tumor and the endothelium of the blood vessel had been lost, that is to say, its connection with its first origin.

The two cases reported here, then, support the conception of Volkmann that endothelioma may start from the parotid gland. An accurate study of the neoplasms of the parotid gland in the near future will probably solve the problem of the origin of the so-called "mixed tumors of the parotid," giving them a definite position in the classification of the neoplasms.

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CASE REPORTS PRESENTED BEFORE THE MINNESOTA ACADEMY OF MEDICINE

Meeting of March 8, 1922

Dr. H. L. Staples, Presiding

BY DR. C. EUGENE RIGGS

Case of Suppressed Complex.—Miss A., aged 21 years; father died of pneumonia in forty-eighth year; mother is now in forty-seventh year and well; usual childhood infections; matured at thirteen years; never strong, but no serious illnesses; has been in two bad automobile accidents, but escaped injury. Her menstruation has been very irregular, varying from three to six times a year, and since October, 1920, she has not menstruated at all. Mother and sister have shown similar irregularities. The former has been regular since the birth of her first child.

In 1919 Miss A. had a most distressing experience while waiting for a car in a large city. A degenerate, finding her alone, made a most disgusting show of exhibitionism; a short time afterwards she was held up at the point of a revolver and robbed. After these experiences she became very nervous and complained of rapid heart action. The nervousness steadily increased. Before the first experience she never knew what fear was. Since, especially of late, she has been unable to go to bed without looking into the closets and under the bed; indeed, she cannot sleep until she has investigated the whole house. She is troubled with "wild dreams," is always being accosted by someone, and someone is breaking into the house, and in her dreams she is always in great danger and is unable to help herself. "For the past six weeks," states her physician, "she has been in bed most of the time; she has lost weight, and her hemoglobin has decreased. She also has from four to eight 'fainting spells' daily. There is a premonition of their coming; this is followed by tachycardia; the face is pale; the finger-nails are not cyanosed; the attacks have steadily increased in severity, and the patient has gradually become weaker."

The neurological examination was negative; the metabolic rate was plus 11.8 per cent; hemoglobin, 86 per cent; r.b.c. 4,640,000; w.b.c. 7,300; number of cells counted 200; p.m.n., 60 per cent; lymph., 35 per cent; large monos., 3 per cent; trans., 1 per cent; eosin, 1 per cent; urine, normal.

Dr. Rothrock, who examined the pelvic organs, reported as follows: "I have examined Miss A. and find the uterus normally developed, in good position, freely movable. The right ovary can be felt slightly prolapsed, but apparently free from adhesions and of normal size. Ovary on the left side can be felt; could not be palpated. So far as the pelvic organs are concerned, there is nothing abnormal to be discovered, so that it is probable that her amenorrhea is functional and is probably dependent upon some disturbance of the balance of the internal secretions. It would appear that this is but one of the symptoms of the clinical syndrome."

Observation made it clear that the "fainting" attacks were neither of epileptic nor of hysterical character, but were dependent upon the psychic insult she received in the first experience referred to above. This she kept to herself and has never mentioned it to anyone until she related the experience to me. Evidently this distressing complex was the cause of her nervous symptoms and offered a satisfactory explanation of her illness. The endocrine factor is an epiphenomenon; its familial character is most interesting and undoubtedly had been influenced by the stress and strain through which she has passed. Immediately after I explained to her the psychology of her trouble the attacks ceased; her stay at the hospital was short. At present she is in excellent health and enjoying her work.

This is an instance where one must consider, as Patrick says, "the patient above the eyebrows." During the earlier interviews she made no reference to her distressing experience. She stated that life had been uneventful—that of a happy, care-free young woman. The complex was suppressed, not dissociated. Disorders of personality usually arise in either of two ways:

1. Inability of the patient to adjust himself to his environment.
2. The effect of the complex suppressed or dissociated on the subconscious.

Shell-shock and the neuroses of civil life illustrate the former, while this case is an excellent example of the latter. The existence of conserved experiences outside the domain of personal consciousness—the subconscious —a purely philosophical concept, was first postulated by Kant and Hartmann. These experiences not in awareness with personal consciousness were not supposed to bear any relation to life or conduct. Later it was demonstrated by Janet of France and Gurney of England "that dissociation with the formation of subconscious processes motivated by their own emotional impulsive force take on autonomous action and induce physiologic and psychologic phenomena" (Prince), and to these subconscious processes, rather than personal consciousness, personality is believed to be due. They shape our beliefs, our ideal, our character. From them arise the bizarre delusions and hallucinations of the insane; the syndromes of hysteria, psychasthenia, and the various complexes incident to abnormal psychology.

Search for the determinants—the complexes—is a grievous and time-consuming process, but amply repays the effort. In our investigation of functional causes and mechanisms we must not forget that neurology consists of much more than aberrations of personality. Differing radically as we do as to the factors, mechanisms, and process which give rise to the psychotic individual, yet we must all agree that the explanations of the latter can be found only in the conflicts, impulses, and reactions of human personality. (Prince.) I certainly believe in the theory of the subconscious; as a working hypothesis it augurs well; mental conflicts and repression are dynamic factors, everywhere in evidence. Frank suggestion without careful investigation of the psychic factors at play, as in Christian Science, faith cure, osteopathy, etc., sometimes results in recovery, and to this and the indifference of medical men to functional nervous diseases is the popularity of the cults due. In dealing with human credulity and the urge of the mystic which we find in our patients,—their fads, their eccentricities, their fancies,—we must not forget that skillful psychological handling is the crux of the whole matter. May I recall to you the legend of Greek mythology, that the Titans, children of Earth and Heaven, warred with the gods and were cast bound into the Golf of Tartarus, where lying prostrate they became restive and shook their bonds and doing so caused the earth to tremble. When the earth trembles, remember the Titans.

BY DR. E. L. TUOHY, of Duluth

Three cases of Mesenteric Embolism with Resultant Thrombosis of Mesenteric and Intestinal Arteries, Associated with Myocardial Disease.—I wish to report and place on record three instances of this pathological sequence in cases observed for some time suffering from myocardial insufficiency or degeneration.

Gerhardt, in 1863, and Kussmaul, in 1864, first drew attention to the clinical findings associated with this phenomenon. Much experimental work done by Welch, Mall, and others, gives the degree of interference that the main branches of the superior mesenteric artery will tolerate without bowel gangrene. The inferior mesenteric artery seems not to be affected as does the superior, which supplies all of the small bowel except the upper third of the duodenum and one-half of the lower bowel. The superior mesenteric comes off at a relatively high level, closely associated with the celiac axis, and is an artery of relatively large size, no doubt predisposing it to the collection of emboli. Like the coronary, gradual occlusion, if occurring slowly enough, may give time for compensatory relief. But it is generally agreed that rapid, complete occlusion of this artery or any of its chief branches is always followed by hemorrhagic infarction of a lesser or greater segment of the intestine.

The chief clinical signs are the manifest evidence of intestinal obstruction, the passage of stool material (if at all) blood-tinged, and the usual vomiting of fecal material, often bloody. Unless surgical relief can be promptly available, death is certain. The surgical mortality, when mentioned at all, is said to be as high as 92 per cent; only one-sixth of the cases is said to be feasible from the standpoint of resection. The outlook is made doubly bad, not only on account of the infectious and toxic phenomena incident to any bowel obstruction, but also on account of the very severe cardiac condition usually precipitating this abdominal catastrophe.

Case 1.—C. D., male, aged 37, weight about 220 pounds. The patient was under care for auricular fibrillation and myocardial insufficiency with general anasarca. He had, in the beginning, severe dyspnea, cough, with râles at the bases of both lungs, and was thoroughly uncomfortable. There was, in the beginning, before any digitalization, a pulse deficit of 70. After about four weeks' observation and rest he became quite comfortable and was up and about. Then suddenly he had a very severe abdominal colic, with the vomiting of fecal material, later becoming bloody. Enemas brought down some scanty material that was blood-stained and contained mucus. He passed rapidly into a very critical condition.

Under local anesthesia the abdomen was opened, where ten to twelve inches of black, gangrenous small bowel was found. The bowel was greatly dilated. The mesentery was also gangrenous. Tubes were passed into the bowl each day, after sewing it to the belly wall. The patient succumbed within a few hours, about twelve hours after the beginning of his attack.

Case 2.—N. J., male, aged 63, was under observation for myocardial degeneration. He showed occasional short periods of distinct splitting of the first tone of the heart (suggesting branch bundle block). He had a curious interlobar hydrothorax. He showed only a moderate improvement under rest and general supportive treatment. Suddenly, about two months after he was first observed, he developed a severe abdominal colic, vomiting the same kind of bloody material as was found in the first patient. He developed later a persistent hiccough, passed rapidly into collapse, and died within sixteen hours of the development of his intestinal symptoms.

Case 3.—Female, aged 65, originally suffering from obesity and essential hypertension, had been under observation for a period of six years. Gradually, with the evidence of a failure of her myocardium, she developed mental aberrations, but the kidney function, frequently observed, remained well sustained. While the possibility of sending her to a sanitarium for nervous cases was being considered, on account of her mental state, and while she was entirely free from any bowel discomfort, she also developed the same sudden, excruciating abdominal pain, and vomited bloody fecal material. Persistent effort with enemas from below gave no relief whatever. She died within five hours after the onset of her abdominal pain; in fact, while being moved into the operating room for an attempted operative regime.

Comment: It will be seen that all these cases passed into collapse and died extraordinarily promptly. While only one abdomen was opened, and thus confirmation of the diagnosis made available, there is no good reason to doubt the authenticity of the other two cases. It has been sometimes stated that, during digitalization of failing hearts, emboli and infarction are possible and sometimes imminent dangers. One of these cases had evidences of heart-block, and digitalis was not relied upon at all; only in one case had digitalis been used to the point of securing its effect. In that patient the mesenteric embolus occurred at a time when the patient had been restored to fair compensation, and we would not have in mind the possibility of whipping up and distributing the clots that had accumulated during the period of his high pulse-deficit. I feel that this condition must occur oftener than the literature leads us to suspect. It is quite possible that this condition sometimes masquerades under the diagnosis of an ordinary intestinal obstruction, or, more rarely, might be misinterpreted as an uremic evidence in patients with failing hearts who are rather prone to show albumin in the urine.

In addition to these cases I would like to present a case and show one slide in connection with a curious disease, and would like to ask if any of the members present have seen anything like it. It is a case of Milroy's disease.

Milroy's disease, Meige's disease, or hereditary tropho-edema was first described in this country by Milroy, in 1892, and later by Meige of Paris in 1899. Case reports of this rare condition have been few, the most noteworthy contribution being that of Hope and French, in 1908, in the *Quarterly Journal of Medicine.*

The condition belongs to the trophoneuroses, affecting the vasopermeability, and therefore may be allied to angioneurotic edema and the acute circumscribed edema of Quincke. The condition is frequently found in association with other trophoneuroses, such as urticaria, intermittent hydrarthrosis, and angioneurotic edema. It is essentially chronic, begins congenitally or in early life, and has little tendency to shorten life, one patient living to the age of 83. The edema is chronic, affecting the extremities usually unilaterally at first and sometimes eventually becoming bilateral. It is more common in the lower extremities and, in its development, is characterized by the fact that it begins usually about the ankle without any dependent edema in the foot. After a varying period of time the edema seems to ascend rapidly to the knee and again later on to the hip, beyond which point it does not go. The edematous limb is generally pale, but may be cyanotic or hyperemic. There is pitting on pressure, but the consistency is much firmer than in ordinary edema. Usually a mild state of elephantiasis is reached. The familial tendency is characteristic, and without it the diagnosis is questionable. In the cases reported by Hope and French, eight were afflicted in a single family. Another striking characteristic found in the condition is periodic attacks of fever, accompanied by vomiting, diarrhea, epigastric distress, and a marked hyperemia of the affected limb simulating erysipelas. These attacks may occur quite frequently and suggest the paroxysmal seizures of Quincke and Raynaud's disease, but similar seizures occur in filarial elephantiasis, so it is not characteristic of a trophoneurotic condition. Unless the following criteria are fulfilled, the diagnosis of Milroy's disease should not be made:

1. The absence of all recognized causes of edema outside the nervous system.
2. Its extreme chronicity, the affection dating sometimes from birth and lasting for the remainder of life at whatever period it starts.
3. The sharply defined boundary of the swelling and the tendency to affect segments of limbs rather than to follow the law of gravity as in ordinary edema,—for example, the leg may be grossly diseased and the foot almost normal.
4. The tendency to produce a hyperplasia of the skin and subcutaneous tissues of the part affected.
5. The familial and hereditary character of the complaint, and its association either in the affected individual or in other members of the family with other neuroses.

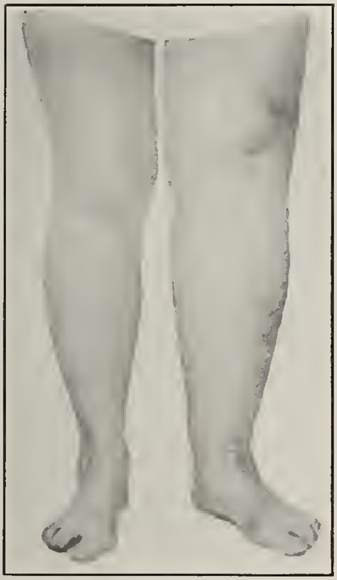
The case I wish to present is that of Mrs. W. R., Canadian born, aged 50, married, and by occupation a housewife.

The patient has had no children, and had one miscarriage.

Family history: Father died of pneumonia; mother died of heart disease, and had from about the time of puberty the same condition in her leg which this patient presents. Several brothers and sisters are living and well. One sister died of some obscure lung disease. One cousin similarly has the same condition as the patient's mother and the patient herself.

Menses: Patient's menstruation ceased at the age of 45, uneventfully, and without any recurrence since that time.

Past history: Patient has always been well, with the exception of the presenting condition, and for the fact that in 1920 she on two occasions had fever with vomiting and gastric distress, which lasted several days, with severe chills, and accompanied by a marked redness of the legs.



Milroy's Disease

Present complaint: Patient now complains of marked swelling of the left leg from the groin to the ankle, slowly progressive, beginning at the age of 18, before she was married, without any antecedent history of infection, and gradually progressing from the ankle upward to the groin. The condition has been unaccompanied by pain, but in the past year the patient has noticed a similar tendency to swelling about the right ankle. At one time a superficial wound of the left leg resulted in the transudation of serum for about two weeks, but benign healing soon followed. Patient's general symptoms were negative.

Physical findings: On examination the following data were elicited: temperature, 97°; hemoglobin, 80; red blood count, 3,750,000; white blood count, 8,000; catheterized urine, negative (chemically and microscopically). The patient had a distinct pallor, suggesting the anemic condition, verified by the blood picture. Examination of the head and neck was negative, with the exception of mildly infected tonsils. Examination of the chest, including the heart and lungs, was negative. Examination of abdomen negative. Pelvic examination showed a small uterus, without fixation and any evidence of deformity in the adnexa. The upper extremities were normal. The left leg showed a rather uniform, pale swelling, from the ankle to the groin, not involving the foot appreciably, which did not pit very easily on pressure and seemed to be hard in consistency. Examination of the other leg showed only a beginning edema about the ankle and slightly above that point.

Diagnosis is based on the fulfillment of the criteria outlined by Turney:

1. The absence of any cause for the edema outside the nervous system.
2. The chronicity.
3. The sharply defined boundary, with the absence of edema in the foot.
4. The hyperplastic skin and subcutaneous tissue.
5. The familial and hereditary tendency.
6. The exacerbations of fever, redness, chills, and epigastric distress.

DISCUSSION

Dr. A. W. Abbott: About fifteen years ago I had one of these cases and did not know what it was. I did not know, in fact, until just now. I remember the case very well, and it answered the description of Dr. Tuohy's case perfectly. The disease was confined to the space below the knee and above the ankle. There was no other case in the family. I suppose it has to begin with some member of a family. The patient, a boy, who was about ten years of age, might have been the beginning of a series.

Dr. Paul Cook: We had a boy here during the summer who was eight or ten years of age. I think he finally went to the University Hospital. His case was really not a skin condition. His history went back only to an uncle, who had the same condition.

Dr. S. M. White: Dr. Tuohy speaks about the lack of involvement of the foot, but in the boy of whom Dr. Cook speaks the dorsum of the foot on both sides was involved. The parents were free from the condition, but an uncle of the boy had the same condition. An adult seen about three years ago also had involvement of both legs, but only on one side was there involvement of the foot. That patient, on investigation, proved to have had an ancestry in which the disease had occurred in at least three generations. In one of those cases it was a decidedly deforming condition. There was an edema about like that in the case given by Dr. Tuohy.

Dr. Tuohy: Was there a history of abdominal cramps?

Dr. White: In neither of these cases was there a history of abdominal symptoms.

Dr. A. C. Strachauer: Milroy's disease of the lower extremity without involvement of the foot is, of course, easily diagnosed, but when the foot is involved how would the condition be differentiated from elephantiasis? I am not referring to Dr. Tuohy's cases, but to the cases cited in the discussion. I fail to see how the differentiation can be made unless there be a familial history and co-existing abdominal symptoms. In elephantiasis of the lower extremity the foot is, of course, always involved, and while pachydermia and skin folds are present in the advanced cases the skin in the early condition may be quite smooth and normal, particularly in the cases of elephantiasis caused by a previous erysipeloid infection, which latter type constitutes the majority of cases seen in this country; the filarial type being most rare.

Regarding the subject of mesenteric thrombosis, as presented by Dr. Tuohy, my personal experience is limited to two cases. The suddenness and severity of the onset of symptoms are similar to those of acute hemorrhagic pancreatitis. It is very evident that a calamity has occurred and it is unwise to waste valuable time in endeavoring to make too refined a diagnosis. The diagnosis of acute surgical abdomen suffices, and the patient should be operated on as promptly and with as great dispatch as possible. In one case twelve feet of jejunum and ileum were resected, and end-to-side anastomosis of the terminal ileum to the anterior wall of the stomach was made. The vitality of the duodenal-jejunal site of resection was so impaired that it had to be closed as a blind end. The patient did very well for three days and then died.

We are carrying on some animal work at the University to ascertain whether the operation of closing the end of the duodenum with a gastro-intestinal anastomosis is a feasible one.

In the second case a foot and a half of bowel was resected, and the patient lived for five days.

Surgical treatment is the only possible hope for these cases and must be promptly applied to be of benefit.

Dr. Cook: My recollection of Milroy's disease is that it is congenital.

Dr. Tuohy: According to the literature this is not true. In this case it did not develop until the patient was 18. It is regarded as a syndrome. The literature points out that there is a difference so far as the paroxysmal seizures are concerned. Elephantiasis had to be ruled out on the secondary signs of the disease rather on the appearance of the leg.

Dr. E. S. Geist: Within the last ten days I have had a case similar to the one Dr. Abbott speaks of—no swelling of the foot, and swelling of the leg between the ankle and knee. The patient was a woman thirty-five years of age, and the condition followed some infectious disease some fifteen years before. I think it was scarlet fever. It was unilateral, the skin smooth, and there was an edema, which was permanent and not relieved by rest in bed. I should like to ask Dr. Tuohy what the literature says about the possible infectious origin of this condition.

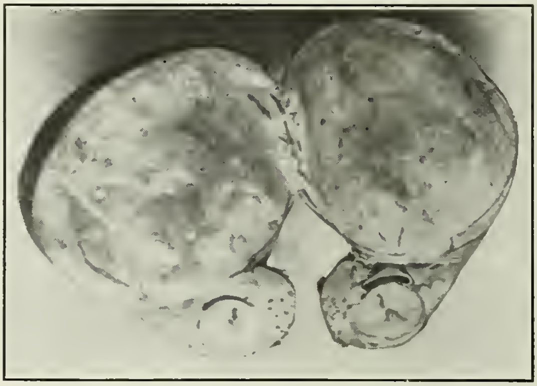
Dr. Tuohy: The literature leaves the cause of the disease indefinite. Purpuric cases will pass blood in the urine. These pains are due to intestinal cramp caused by swelling in the intestine itself. There may be a cause similar to that of angioneurotic edema. Evidently, infection is not the chief causation. Food idiosyncrasy or poisoning might be a causative factor. While the literature mentions the fact that the disease may be congenital it also states that it may come on any time.

Regarding operation for the bowel condition incident to thrombosis of the superior mesentery, I would say that if we were to look out for it in heart disease cases something might be done, but it comes on so very suddenly that one must act quickly.

Dr. R. E. Farr: Elephantiasis is not always caused by filariasis. Handley has reported a number of instances in which the staphylococcus albus was cultured in subcutaneous fat. I believe that elephantiasis need not be confused with this disease, for it becomes more or less permanent when established and we do not have remissions.

BY DR. ARCHIBALD MACLAREN

A case of kidney tumor in a child.—On February 27 Dr. Ramsey, of St. Paul, referred to me a small boy 18 months old. He had a large, smooth, elastic tumor in the upper right hypochondriac region. This tumor was first noticed in December, 1921. It was pronounced at once as inoperable and hopeless and was taken to Dr. Owre for *x*-ray and radium. Dr. Owre gave four radium treatments consisting of 5,400 milligram hours with a one-inch gauze pad between the radium and the skin. The last treatment had been given two weeks before we saw the child. The tumor had steadily increased in size in spite of the radiation. There was no discoloration of the skin over the tumor. The child had gained three pounds in weight in the past two months and looked the picture of health, except for the steadily increasing tumor. There had been no other physical findings except blood in the urine, which had been noted on two different occasions. The first time there was considerable blood one day three months ago. The second bleeding was very slight, the urine being markedly pink in color for one day three weeks ago. Aside from the symptoms noted the child was normal in every way.



Because there was some question regarding the advisability of any operation, Dr. A. Schwyzer was asked to see the patient with us. He advised the wisdom of an exploration to determine the character of the tumor.

After removal the tumor mass was sent to Dr. Margaret Warwick, who gave the following pathological report:

"Kidney and tumor mass. A large tumor mass, measures 4x4x4 inches. It is entirely encapsulated, but this capsule shades imperceptibly into the capsule of the kidney. No adrenal was found. The kidney itself measures 2x2½ inches. Throughout the cortex are numerous small cysts which measure from 1 to 3 mm. in diameter. In the center of the cortex is a tumor mass similar to the larger one described above only it is much smaller, measuring 1x1 inch. This projects down into the pelvis of the kidney but is not connected with the mucosa of the pelvis. The pelvis itself is moderately enlarged and somewhat distorted by the pressure of the larger tumor mass, but otherwise appears normal. The upper pole of the kidney is markedly elongated and fades into the capsule of the larger tumor mass.

"Gross section of these tumor masses shows them to consist of very soft homogenous pink tissue. Microscopic section shows identical structure in both tumors. It consists of various tissue elements. Groups of spindle cells predominate, and these show many mitotic figures. In these masses of spindle cells are numerous atypical tubules lined by poorly differentiated epithelial cells showing many mitotic figures. These tubules, however, have definite lumina. There are also areas showing the stellate cells typical of myxomatous tissue. In still other areas there are bundles of smooth muscle tissue. So this must be classified as a mixed or embryonal tumor of the kidney. From the histological picture alone it appears to be of a very malignant type, but the behavior of these tumors cannot be foretold by their cellular appearance, for many do not metastasize, while others, less malignant in appearance, do metastasize.

"Diagnosis: Embryonal adenomyomasarcoma (malignant mixed tumor) of the kidney."

DISCUSSION

Dr. A. Schwyzer: I saw the patient before operation, and the most striking feature was the large size of the tumor in a little baby 18 months old. The child looked remarkably healthy, playful, and well. Another interesting feature was that the tumor was absolutely smooth. It was a condition which would invite surgery and gives us a chance to get a clean removal.

Dr. A. T. Mann: These tumors of the kidney are very interesting. Pathologists have a good deal of difficulty in uniting as to just what they are. But the point I arise for is the question of radium. As I understand it, radium is really most effective within a distance of one inch, and beyond that distance its rays penetrate rather sparsely, and while they may go to a considerable distance there is not very much power to them. Also the dosage would vary with the intensity of that ray. With an application of radium to such a deep tumor the portions near the radium would receive a degenerative dose, and the cells would be destroyed; in the next zone beyond this the cells would receive a sterilizing dose, and while they would be able to live they would lose their power to reproduce: and in the zone beyond this the cells would receive a stimulating dose, making them grow more rapidly. It strikes me that this is not a proper case to use radium in. In the first place a small amount of radium is a stimulating dose, that is, stimulates the cells to grow. A larger dose is a sterilizing dose. Where radium is used for a longer time it helps the tumor to degenerate, but in tumors of this kind I believe it should not be used.

Dr. H. B. Sweetser: I ask about the pathology of this. Pathology seems to bear out that this is a mixed tumor of children. About four years ago I took one out of a child 8 years old. I was astonished to find how easily it came out. The child was out in a short time. I gave the tumor to Dr. Bell, who pronounced it a mixed tumor of children and said that the child would not live over eighteen months. This child lived over a year and died in about fifteen months I think. Some man in New York reported that all of his cases were in young children. One young woman lived for three or four years. I have not seen tumors like that in children who did not die. The prognosis is almost absolutely fatal.

Dr. MacLaren: It seems to me that when we have a case like this we are justified in operating if for no other reason than that we may determine the absolute character of the growth. Suppose we could not entirely remove the growth. Then the proper thing to do would be to put the radium right into the tumor. Dr. Ramsey says he has one case still well after three years. But even if we can give the patient only one or two years, I think that is worth while, for all that we are doing as physicians and surgeons is to prolong life a short time.

BY DR. A. W. ABBOTT

A case of pregnancy without a corpus luteum.—Mrs. G., first seen January 17, 1922, aged 27 years, had one child eight months old. Menses began in July after confinement. Menstruated regularly to November 18, then flowed profusely; no pain. December 15, slight flow followed by yellow discharge with some odor for four days. No flow in January, but pain and tenderness in right pelvis. Sharp pains at intervals; no violent pains. Other general conditions normal except hemoglobin, which was 58 per cent. Uterus in normal position, large. Soft cervix. Indefinite tender mass in right pelvis. At this time the diagnosis was possible unruptured ectopic pregnancy. January 20, swelling and tenderness slightly less. January 28, swelling increased with great tenderness, pains continuing. January 29, a median exploratory incision made. In the right pelvis was an impacted ovarian cyst, thick-walled and containing a slightly tinged content. Left ovary was decidedly smaller than normal, either atrophic or never fully developed. No corpus luteum could be found in either ovary after most careful examination. Microscopic examinations of the ovary shows the usual decadent corpora lutea of menstruation. The cyst wall shows no evidence that the cyst was ever a corpus luteum. Uterus was the size of a two months' pregnancy. February 9 and March 1 the patient was reexamined. Uterus still increasing in size with every indication of pregnancy.

This case is presented with the specimen of the right ovary removed at the operation because it is taught that in pregnancy the corpus luteum peculiar to that period is always manifest. In this case there is either a mistake in the diagnosis of pregnancy or else this must be a rare exception to the rule. If this proves to be a normal pregnancy, the absence of the corpus luteum of pregnancy cannot be positively depended on as a deciding factor in differentiating a soft uterine tumor from a pregnancy.

H. P. Ritchie, M.D.,
Secretary.

THE
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The Official Journal of the
North Dakota and South Dakota State Medical Associations

W. A. JONES, M. D., *Editor*

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THE MAKING OF A PROGRAM

The chairman of the program committee for Minneapolis Clinic Week submits an exposé of his mental state during the formative period of both the tentative and the final program. It is very easy to construct in one's own mind an ideal of how a program should be made, but one is in quite a different state of mind when a program is under construction by him. Someone must be responsible for all of the errors and mishaps that occur, and the chairman of the program committee is the one who is held up to public ridicule for errors made, and who gets all the damning of the profession because a stenographer omits a name or a title or is unable to secure from the man who is expected to operate, or give a clinic in medicine, the proper information because he is hesitant about it, or is negligent about it, and has tried to get in at the last possible moment. Part of this is due to unsurmountable difficulties. The surgeon is never quite sure that he will have the expected surgical case at the hour he selects; the patient may die, or may require immediate operation, or may fail him after a promise has been made.

Then, too, the printer occasionally drops into error. He leaves something out; he misspells words that have been sent in to him correctly spelled. As an illustration, a clinician is down for a talk on the subject of tumor of the sacral region, and the printer kindly misplaces a letter or two and the program comes out with the announcement that the clinic will be given on "tumor of the sacred region." The author of such a clinic is up a tree. He does not know where that region is located, but he has promised to use all decorum and avoid any allusion to the error on the program. Many of our clinicians send in their reports that they will give clinics in general surgery or general medicine, and they put down the hour and day and forget to put in the subject of their clinics. The result is that they are disappointed. They fail to realize that the disappointment depends upon themselves. The rush and hurry of the two or three days before the thing is finally accomplished causes great confusion, similar to that shown in the newspaper offices, where you frequently find words misspelled, letters twisted about, and occasionally a funny line which is made up of txyz's across the entire column, or the printing is upside down. Yet it all happens in the day's work, although it has been carefully scrutinized and gone over by first-class proofreaders. But, somehow, at the last moment, something has gone wrong, and we laugh at the newspapers and think it is a good joke. But when it comes to interfering with the nervous susceptibilities of the doctor, we meet with quite another problem. He is so extremely sensitive, and so anxious that his name and his subject shall be in perfect condition, that he howls with dismay if anything goes wrong.

The real way to make a program is to hire a room in an empty office-building, in which there are no elevators, but two or three telephones on a convenient desk and three or four desks occupied by competent women, such as we always employ on our clinical program force. Then, to send out to every clinician letters in bold-faced type (the bolder the better) stating exactly what is to be done and insisting that it be done at a certain time and sent in to the above-mentioned office at a definite day and hour. This is the only sure way of having the work go on uninterruptedly, coherently, and without too many changes at the last moment.

The writer might add that the printing office should be located in this empty office building, so that communication between the printing office and working force could be close enough so that everything might be very carefully scrutinized.

If there is any man in the medical profession who would like the job of constructing a program, or as chairman of the program committee, let him please hold up his right hand. But it won't be long, after he is in there at his first session, before he will exclaim with Macbeth: "Lay on, Macduff, and damn'd be he that first cries, 'Hold, enough!'"

The publisher of The Journal-Lancet, who has done this work in the past, was not able to do it this year.

MEDICAL PROPAGANDA

At a recent mass meeting which drew out one of the largest audiences in the history of the Hennepin County Medical Society, the Committee on Legislation and Medical Propaganda discussed, from many angles, the ways and means of instructing or advising both the physicians and the public as to what is needed by the medical man. One of the principal ideas is to disseminate medical knowledge that will be of benefit to the public. This knowledge is to be passed over to our legislative representatives, and each county in the state will be urged by the general committee to provide, from its local or district society, a sufficient number of men who will organize themselves into a body ready and willing to furnish medical material that is suitable for publication or to give to our legislators.

This does not all go to the education of the public. It is supposed to go, in part, to the education of the doctor, for the profession know now that they need a bit of help, too. It is unfortunate that in the medical profession, as in other professions, there are men who do not live squarely up to the accepted standards; and some of them have become so indifferent to what is commonly called the morale of the profession that they forget they belong to a scientific and dignified body, whose first aim and object is to secure good and liberal service to the public rather than to neglect their duties, evade their responsibilities, and prevent the public from getting what is sincere and honestly true. As has been said before, fortunately these men are few in number; and some of them are so radical and so lacking in merit that they should be brought up before their own societies and in some way reformed, if that is a possible thing. If a man has been out in practice, whatever the profession to which he may belong, for a number of years, and has persistently deviated from the straight path, he is not a candidate for reformation. He is a dyed-in-the-wool adherent of poor principles, and nothing much can be expected of him. All that can be done is to drop him out of his organization or prevent him from getting into an organization in which he will be a non-working member and one who is not entitled to the respect of his fellow associates. This seems like a very drastic attitude to take, and in a measure it is, but it is something that is confronting us every day, and someone must take the initiative and try to improve the status of the medical profession just as the lawyers are trying to improve the status of the legal association.

The Hennepin County Medical Society is working now to join hands with its legal brethren, not only in getting away from bad associates, but to promulgate new measures which are constructive and which will be of help to the medical profession and to the courts of justice. It is hoped by this general committee, which has been appointed by the president of the State Medical Association, together with local committees that they may appoint, that the gospel of information and honesty throughout the state may accomplish great good.

A LAYMAN'S ACCOUNT OF THINGS SEEN AND HEARD AT A MEDICAL CLINIC

The recent meeting of the American Congress on Internal Medicine, which was held at Rochester from the third to the sixth of April and in Minneapolis from the seventh to the eighth of April, brought out some very amusing reading matter for the doctors, and showed how easy it is for a layman to misconstrue medical facts. For instance, a very energetic young woman reported that an instrument had been devised, called the *ophthalmoscope*, by means of which the operator could look into the eye of the patient and see, not only the blood vessels and the head of the nerve, but could see into the brain. And as one read on in this interesting and romantic story, one conceived the idea that the instrument had been invented within three days; that it was something entirely new; that doctors were urged to carry it around with them as an aid to diagnosis and become familiar with its operation. As a matter of fact, every doctor knows the ophthalmoscope and knows also that it was invented seventy-one years ago, and has been in constant use by every man in the medical profession who attempts to make a general diagnosis.

It is unfortunate that such information gets out. There was no excuse for it getting out and into a daily paper when by simply turning over the report of the reporter's observation to any doctor who belongs to the staff of the Clinic from which it was reported it could have been put in such language as to make it good reading matter without any misconstruction on it whatever. But it is out now, and all the eye and ear men are peeved to think that it is implied that the ophthalmoscope was perfected in Rochester and that the men there, and they alone, know its value and its use. However, as we are going to ally ourselves with the public press we may get into the same boat and some of our medical information may be distorted by the man who makes the "pi" in the printer's office.

MEMBERSHIP IN THE CONGRESS ON INTERNAL MEDICINE

The meeting of the Congress on Internal Medicine in Minneapolis, and also in Rochester, was very successful, and the visitors were given clinics at the University Hospital and other hospitals by good clinicians; and, so far as we can learn, the society was very much pleased with their reception both in Rochester and in Minneapolis. The Congress is attempting to increase its membership, and will expect ultimately to become an organization that will be worth while in this country. At the present time, the men who apply for membership must be high-grade men. When the editor went down to see an old acquaintance in Dr. Frank Smithies, he was urged to sign up and receive a degree in the evening. But, somehow, something went wrong. The original initiation fee was twenty-five dollars, and, we think, this price was held out to prospective members until about 3:30 P. M. on Friday. But the blank that the editor received stated that the initiation fee was one hundred dollars, and who ever heard of an editor who had a hundred dollars to pay for such a luxury? Some may have, but not here. Five men from Minneapolis were initiated into membership in the Congress, showing that someone had money, faith, and a desire to join the organization; but a few others in Minneapolis did not.

GOLD-BRICK ADVERTISING

The remarkable efforts of patent-medicine men, illegal practitioners, and chemical concerns who deal exclusively with the individual and who promise a cure, is well exemplified by an advertisement on the editor's table. This special advertisement refers to the cure of epilepsy and is sent out by an association in Chicago which evidently can be reached by the Council on Pharmacy and Chemistry of the American Medical Association. An expose of the firm was published a short time ago in the *Journal of the A. M. A.*

To the physician these letters are almost insulting, and the reading matter which they contain is disgusting and wholly unscientific. Then, too, they have the effrontery to send out a yellow paper embossed with green columns, which they call a guarantee bond, and which says that "this guarantee is drawn up for the complete protection of our patients, and covers all cases of true epilepsy—no matter how serious. It is backed by the entire "Western Medical Association." That is lie No. 1.

Then it goes on to set forth, in large type, "We hereby guarantee to stop completely all epilepsy attacks—fits." Lie No. 2. And under this are the following points which they make:

"1. When every other medicine has failed.

"2. No matter how often the attacks occur.

"3. No matter how long the patient has been afflicted.

"4. No matter whether young or old.

"5. No matter whether man, woman, or child.

"6. No matter whether hard or slight attacks."

Then they adopt the usual method on this alleged "gold bond" to promptly and cheerfully return every cent of the patient's money if, after using the treatment for thirty days, the patient does not obtain the benefits set forth above. That is simply a correlated set of absurd prevarications and has no foundation in fact whatever. Any man or concern or house that promises all this is a fraud. On the back of this so-called "guarantee bond" are set forth, quite gaudily, the following questions:

> "Will any Doctor or Patent Medicine Firm, or anyone else in the world, guarantee to return your money, if their medicine does not stop your fits?"

What untold misery these remedies bring into the household! The editor has a very keen recollection of a man who was in the State Hospital for the Insane because he was an epileptic dement who was taken out by his adoring family because they could buy six bottles of fit-cure for five dollars. After the man had taken five bottles of it he was nearly dead, and was brought back to the hospital by his sadly-convinced family; and it seemed perfectly certain that if he would have taken the sixth bottle they would have buried him.

We also hear of many people in the country advising their epileptic friends to try patent medicines, and they are prompted to do so by a further circular which is sent out by the firm referred to above, and doubtless many other firms, asking them to spread the information that they were in a position to cure epilepsy; that, if they will send the names and addresses of other epileptics, they will be spreading the gospel of charity. The particular circulars which the editor has at hand now were brought in by a man who had an epileptic son. No one in this distributing agency had ever seen the boy, and yet the parents, without hesitancy, kept him on these tablets, pills, etc., for a year or more. And they thought at one time that the boy was better for a couple of weeks. But he soon returned to his old state of mind and was showing the psychosis which not infrequently is associated with epilepsy or some of its so-called cures.

It would seem, then, that all enlightened physicians should do their utmost to discourage this patent-medicine bartering among people in the country and in the cities, too. It should be utterly condemned. In the first place, there are very few drugs that can be put up in tablet form, other than luminal and pituitary-gland extract, that will help epilepsy. And putting up drugs in this manner is an effort on the part of the factory to get away from the bottled-goods stuff. Yet, these two drugs, which should be used cautiously and carefully, are sent out indiscriminately to anyone who pays for them. It is conceded, too, that almost every variety of liquid form of treatment for epilepsy contains the bromides, but not in sufficient quantities to correct or regulate the attacks, and with insufficient directions as to the care of the patient; nor is any effort made to seek out the cause for the attacks.

MINNESOTA MEDICINE—WELCOME TO MINNEAPOLIS

A metropolitan journal can be published successfully only in a metropolitan city, particularly in the metropolis of the territory in which it seeks to establish itself. This is a lesson the inexperienced always has to learn by experience, and sometimes a publisher pays dearly for such experience. Just what the lesson has cost our esteemed cotemporary we do not know; we trust it has not been a large sum. At all events, The Journal-Lancet welcomes to Minneapolis from the beautiful city of St. Paul, its esteemed cotemporary, *Minnesota Medicine*, and its companion piece, *The Northwestern Druggist*, which are under the same efficient business management.

Minneapolis has long been the home of Northwestern professional and trade journals, and, we believe, not a single one has become thoroughly established in this territory outside of Minneapolis.

MISCELLANY

A VALVE ATTACHMENT TO A SYRINGE FOR LOCAL ANESTHESIA

The impulse given by the preaching of the gospel of local anesthesia by Dr. R. E. Farr, particularly in the development and use of his efficient pneumatic injector, has prompted other men in Minneapolis to invent devices for infiltration anesthesia.

Dr. A. N. Bessesen has not been content to offer one syringe, but is the inventor of two syringes. Dr. A. A. Laurent and Dr. A. W. Abbott have added their contributions in this line and are enthusiastic advocates of local anesthesia. These surgeons have worked out self-filling syringes, obviating the necessity of detaching the syringe in order to refill it.

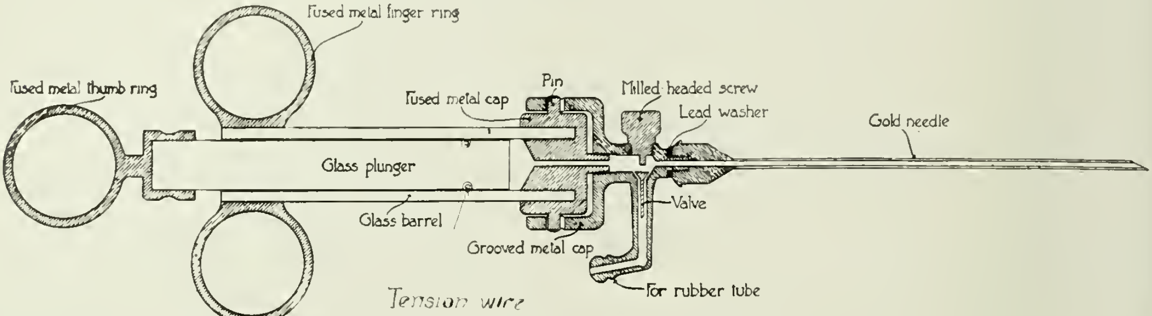
The author has devised an attachment with a single valve, which can be used with any metal or glass syringe fitted with a Luer tip. The Vim green, all-glass, 3 c.c. syringe, with metal mountings fused to the glass barrel and plunger, has been used with the greatest satisfaction. This syringe can be used with an ordinary Luer slip-hub needle or it can be attached to the Dunn valve chamber by a pin and slot joint, insuring rigidity and freedom from the annoyance of the syringe becoming detached from the valve.

The syringe and accessories are contained in a metal case. This, together with the detachable valve and its tubing, five Luer hub-slip needles of assorted sizes, and five long screw-hub needles, make up the equipment.

The syringe is small, can be boiled innumerable times, is tested to 75 pounds pressure, works with great smoothness, has metal finger rings to insure perfect control, can be used in any position, and admits of great delicacy or great force in its operation.

The valve is contained in a valve chamber, is of the drop type, and is made of block tin. It is readily accessible and will not corrode or tarnish.

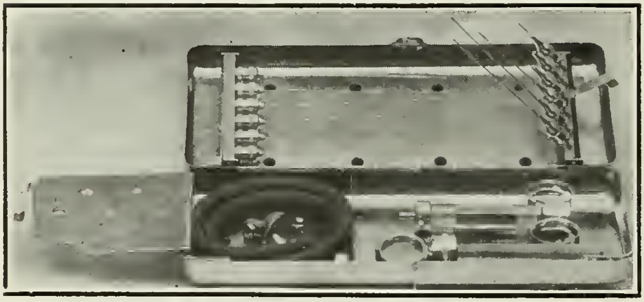
The valve chamber is fitted with a Luer slip-hub end to contact with the syringe and with a screw nipple to fit the screw hub of the long needles.



Sectional view of the syringe and valve.

The needles, of assorted sizes, are made of 14-carat spring gold, and are non-corrosive. They possess the flexibility of needles made from French tubing. They are retained in the case top on pins fitted to a movable bar base. This equipment can be used with great ease in posterior splanchnic infiltration, in blocking the intercostals, in ordinary infiltration, and in intra-abdominal anesthesia.

The time, ease, and comfort it gives the surgeon, as compared to the old-fashioned Luer type syringe, recommend it for use in major surgery.



The case and contents.

The advantages of the apparatus are as follows:

1. It is durable and simple in construction.

2. It can be used and directed entirely with one hand.

3. The automatic valve makes it possible to produce a wall of solution without detaching the syringe or without withdrawing the needle for refilling.

4. The automatic valve makes practical the use of the small diameter syringe.

5. The 3 c.c. capacity of the syringe enables the operator to place a small amount of fluid accurately and easily where he desires.

6. The glass syringe enables the surgeon to detect blood or air in the barrel.

7. The bayonet attachment permits the instantaneous detachment of the syringe in order to remove the air bubbles.

8. The perforated metal case containing the entire apparatus can be carried in one's pocket and can be sterilized as a unit.

9. It is so simple to operate and so reliable in its action that it does not require much skill for its use.

10. It is particularly valuable where trained assistants are not obtainable.

I am glad of this opportunity to acknowledge my indebtedness to Dr. R. E. Farr as the stimulator of my interest in this subject and the demonstrator of the principles of local anesthesia.

Louis Dunn, M. D.,
3040 Lyndale Ave. So.,
Minneapolis, Minn.

NEWS ITEMS

Dr. Henry Takacs has moved from Johannesburg, Mich. to Marmarth, N. D.

Drs. B. J. Gallagher and H. M. McIntire, of Waseca, have formed a partnership.

"Birth control" of flies is urged by the health commissioner of Minneapolis. The principal method is "swat the fly."

Glen Lake Sanatorium, the Hennepin County tuberculosis institution, expects to have $500,000 soon for additional buildings.

Aberdeen, S. D., hopes to get one of the Shrine hospitals for crippled children, ten of which are to be built in various parts of the country.

Four physicians were candidates this year for the position of health officer of Virginia. On the thirteenth ballot, Dr. H. T. Ground was reelected to the position.

National Hospital Day will be observed on May 12. A few cities in the Northwest have already appointed committees to take charge of programs for the day.

The "flu" is passing, at least so says the Minnesota State Board of Health. It is milder in form this year, but more numerous—indeed, "too numerous to mention."

Dr. R. G. Doupe, who left Little Falls last year for Santa Barbara, Calif., with the intention of making a permanent residence in that state, has returned to Minnesota.

The April meeting of the Hennepin County Medical Society promises to go into the history of the Society as a very notable meeting. It is referred to editorially on another page.

Dr. Elmer L. Sutherland, of Sheridan, Mont., died last month at the age of 49. Dr. Sutherland was born and educated in Canada, but had passed most of his adult life in Montana.

Dr. A. G. Beyer, of Red Wing, whose plans for going to Vienna were broken up by the sickness of his wife, has gone to New York City for an extended postgraduate course in eye, ear, nose, and throat work.

Dr. H. B. Beeson, who formerly practiced in Forman, N. D., after an extended course of postgraduate work, has located permanently in Grand Forks, N. D., and will confine his practice to eye, ear, nose, and throat work.

Dr. Eduard Boeckmann, of St. Paul, a former president of the Ramsey County Medical Society, celebrated his 73rd birthday last month. The Society gave the "young man" a handsome Turkish rug as a token of its esteem.

"The Huron Clinic" has been organized by a group of physicians of Huron, S. D., who formerly controlled the Sprague and Samaritan hospitals of that city. The Clinic will continue to conduct the Sprague Hospital.

Two government hospitals, one in St. Paul and one in Minneapolis, have passed from the jurisdiction of the Public Health Service to that of the Veterans' Bureau. This change in nowise affects the personnel of the hospitals.

It is believed that work on the new Deaconess Hospital building to be erected at Billings, Mont., will be begun soon. The Rev. Dr. C. B. Crouch, of Helena, is now in Billings and will act as superintendent. The building will cost $250,000.

Dr. E. C. Rich, now of Villard, is talking of converting his large residence in Sauk Centre into a hospital. Its location predestinates its name, "Main Street" Hospital. It may become the most widely known hospital in the world—or "it might have been."

Physicians and members of the American Legion of South Dakota, upon the death of Dr. F. A. Spafford, petitioned the governor of the State to appoint Mrs. Spafford a member of the State Board of Regents to fill out the unexpired term of Dr. Spafford. This act was a handsome compliment to Mrs. Spafford.

As this issue of THE JOURNAL-LANCET goes to press the American Congress on Internal Medicine is in session for two days in Minneapolis, having come from Rochester, where it held a four-day session; and the advance guard of outsiders coming to Minneapolis Clinic Week are on hand. The editor will discuss the two meetings in our next issue.

It would be a hazardous undertaking to make, offhand, and call it complete, a list of the various health clinics now given free by doctors almost every day. The following is a small list of such clinics gathered in a part of a day from the lay press of the Northwest: tuberculosis, cancer, health, nutritional, underweight, goiter, heart, baby, prenatal, and eye, ear, nose, and throat.

About as the reporter of a St. Paul daily put it, "a plank in the wharf broke, two white men plunged into the river, an Indian trapper with a broken leg was brought to shore, no ambulance was at hand or readily obtainable, a rude cart carried the wounded man to the Mission ground," etc. That occurred sixty-seven years ago last month, and on that particular day St. Luke's Hospital of St. Paul was seen in vision. It is today one of the best known hospitals of the Northwest.

The program of the North Dakota State Medical Association for its next annual meeting contains the names of only five physicians outside of the state, as against three times as many outsiders on the program of the South Dakota Association. The following are the five "intruders" in North Dakota: Drs. Emil S. Geist, Paul H. Rowe, and John A. Pratt, of Minneapolis; and Drs. Walter R. Ramsey and A. W. Ide, of St. Paul. The annual meeting will be held at Jamestown on June 1 and 2.

The following Minneapolis physicians will present papers at the annual meeting of the South Dakota State Medical Association to be held in Huron, S. D., May 17 and 18: Dr. J. G. Cross, Dr. J. D. Lewis, Dr. J. A. Meyers, Dr. F. W. Wittich, and Dr. F. R. Wright. The other speakers from outside of South Dakota are as follows: Dr. B. F. Lounsbury, Dr. Dean DeWitt Lewis, Dr. Bayard Holmes, and Dr. C. W. Hopkins, of Chicago; Dr. H. F. Helmholz and Dr. Verne C. Hunt, of Rochester, Minn.; Dr. E. P. Quain, of Bismarck, N. D.; Dr. R. F. Bellaire, of Sioux City, Iowa; and Dr. Donald Macrea, Jr., of Council Bluffs, Iowa.

TENTATIVE PROGRAM OF THE ANNUAL MEETING OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

"The Correction of External Nasal Deformities." (Lantern slides.)
Dr. Jos. D. Lewis, Minneapolis, Minn.

"Medical and Surgical Treatment of Gastric Ulcer."
Dr. B. F. Lounsbury, Chicago, Ill.

"Surgical Diseases of the Bone."
Dean DeWitt Lewis, Associate Professor of Surgery, Rush Medical College, Chicago, Ill.

"Recent Developments in Radiotherapy."
Dr. R. F. Bellaire, Sioux City, Ia.

"Gastric and Duodenal Ulcer; Diagnosis and Treatment." Dr. Donald Macrea, Jr., Council Bluffs, Ia.

Subject to be announced later.
Dr. J. G. Cross, Minneapolis, Minn.

"Syphilis in General Practice."
Dr. A. McLaurin, Pierre, S. D.

"Complications During or Following Operation for Hyperthrophy of the Prostate."
Dr. Franklin R. Wright, Minneapolis, Minn.

"Epidemic Cerebrospinal Meningitis."
Dr. Howard L. Saylor, Huron, S. D.

"The Duty of the Physician and Surgeon to the Adolescent Insane: the Dementia Praecox Patient."
Dr. Bayard Holmes, Chicago, Ill.

"Unusual Fractures and Dislocations with End-Results." (Lantern slides.)
Dr. C. W. Hopkins, Chief Surgeon C. & N. W., Chicago, Ill.

"Pyelitis in Infancy and Childhood."
Dr. Henry F. Helmholz, Rochester, Minn.

"Relation of the Laboratory to Clinical Medicine in the Light of Present-day Medical Advancement."
Dr. J. C. Ohlmacker, Vermilion, S. D.

Subject to be announced later.
Dr. E. P. Quain, Bismarck, N. D.

"Practical Suggestions in the Diagnosis and Treatment of Pulmonary Tuberculosis."
Dr. F. W. Wittich, Minneapolis, Minn.

"Inflammatory Conditions of the Mastoid Process and the Middle Ear."
Dr. A. A. Sorenson, Aberdeen, S. D.

"Tuberculosis."
Dr. J. A. Meyers, Minneapolis, Minn.

Subject to be announced later.
Dr. Verne C. Hunt, Rochester, Minn.

WANTED

A Scandinavian dentist or physician to share office in Minneapolis down-town offices reserved for physicians and dentists. Address 236, care of this office.

ASSISTANT PHYSICIAN WANTED

To relieve a Minneapolis physician with offices in the down-town district. Must have a machine and know the city. Address 235, care of this office.

LOCUM TENENCY FOR THE SUMMER WANTED

A young physician, a Johns Hopkins graduate, with experience in general internal medicine, desires position as locum tenens from June to September, to fill in time until a staff appointment in an eastern university hospital begins. Can do general medicine, obstetrics, minor surgery, *x*-ray, and pathological and clinical laboratory work. Address 234, care of this office.

LOCATION WANTED

A physician desires a location in Minnesota or any central state in a rich agricultural or dairy section. Graduate of Class A school; good training; four years' general practice; aged 31 and married; unopposed practice, salaried position, or contract work considered. Address 232, care of this office.

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SYMPOSIUM ON EPIDEMIC ENCEPHALITIS*

By C. Eugene Riggs, M.D., A. S. Hamilton, M.D., and Charles E. Nixon M.D.

THE CLASSIFICATION OF ENCEPHALITIS LETHARGICA

By C. Eugene Riggs, M. D.,
ST. PAUL, MINNESOTA

At a consultation the doctors may perfectly understand the condition of the patient, but the difficulty comes when the question arises: What are we to say to the friends? What shall we call the trouble? The distinguished surgeon, Dr. John Chiene, of Edinburgh, used to advise, when pressed for a name, that the patient be told that he had a sacro-iliac synchondrosis. This, he said, was literally true and did not commit one, and yet gave the greatest satisfaction to the patient who felt that he had gotten the value of his money. One realizes the wisdom of Professor Chiene's advice when attempting to give a classification of epidemic encephalitis. It is a well-established entity and possesses a symptomatology greatly exceeding that of lues. It manifests also a tendency to change of type, and in addition to the great variety of nervous symptoms there are symptoms referable to other organs. Netter has emphasized the frequency with which the salivary glands are affected and has suggested that this may be the path of egress of the virus. Boyd observed the occurrence of an acute nephritis during the Winnipeg epidemic. Clinicians the world over have zealously striven to create out of the "welter" of symptoms and signs of this protean disease certain clinical forms and standardized groups. As illustration three instances will suffice. Tilney & Howe have described fourteen, Bramwell four, and Barker ten. The last-named believes that clinical types are symbols, which serve to epitomize a group of symptomatic details and are helpful in saving time and thought. Walsh takes exception to the utilization of clinical types for the purpose of classification, although he does suggest that the clinical picture of encephalitis be grouped under four heads:

1. General nervous symptoms of a positive kind, namely, delirium, mania, restlessness, and hallucinations.
2. General nervous symptoms of a negative kind,—for instance, lethargy and coma.
3. Localizing nervous symptoms of a positive kind, such as convulsions, and involuntary movements.
4. Localizing symptoms of a negative kind,—for example, paralysis.

Bramwell says that "an adequate and satisfactory classification which corroborates the clinical phenomena with the anatomical distribution of the lesion is not possible." In epidemic encephalitis we have an acute infection giving rise to a diffuse inflammation, from which no part of the nervous system is exempt, which produces a clinical picture of an acute nervous disease and which presents a most bewildering array of symptoms, and, while the infecting virus has a predilection for the brain cortex and the brain stem, no part of the nervous system is immune. Localization of the infection may be isolated or disseminated; the point of attack may be the meninges, the ventral or dorsal roots, the dorsal root ganglion or the cord itself. In 14 per cent only of Weschler's cases were there predominating symptoms. This effort at classification on a purely symptomatic basis does not, in my opinion, tend to clarity and is most confusing to the medical man; while certain dominant symptoms frequently do occur one must not forget that they may be here today, yet tomorrow they may be associated with or supplemented by others more outstanding.

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*Presented before the Hennepin County Medical Society, December 5, 1921.

When a disease is "in the making" a broad outlook is necessary. If, as in epidemic encephalitis, clinical types and symptomatic complexes fail to be distinctive, constant, or comprehensive, they retard rather than aid. I have referred to the change in symptomatology of this affection. The characteristic triad as described by Netter, in 1918, namely, fever, cranial nerve palsies, and lethargy, mostly ran true to form the world over; now, if present, they are usually marked by more conspicuous manifestations. Dimitz calls attention to the sudden change in type which took place in Vienna in the early part of 1920. The previous form had been that of lethargy; this was replaced by a severe choreic type. The author observed 45 cases within a few weeks. Netter attributes the irritative clinical phenomena to the minimal effect and the paralytic manifestations to the more intense action of the virus. Walsh states that the latter are restricted and selective, while the former are more selective and involve neurons of all physiological levels.

Lethargic encephalitis occurs at all ages, but adults are more susceptible; it occurs more frequently in the winter and is more common in town than country. The duration of the contagious period is undetermined. In the observation of 120 cases, Bramwell has never seen two cases in the same house. MacNalty, on the other hand, has reported an outbreak in a school. Experimental investigations (Straus, Hirshfeld, and Loerve, McIntosh and Turnbull, and Havier & Levaditi) would seem to establish that in the case of rabbits and monkeys (the latter are somewhat refractory) intracerebral injections, either of brain emulsion from a fatal case of lethargic encephalitis or of nasopharyngeal washings or (in rabbits) of cerebrospinal fluid from a patient suffering from the disease, after passing through a porcelain filter, may produce symptoms and pathological findings similar to those seen in man; the virus is also capable of transmission from one animal to another. Harvier and Levaditi have successfully inoculated a rabbit by intra-ocular injections and by injections into the peripheral nerves, but not by intraperintoneal, intravenous, or intratracheal injections; injections of blood extract of bone marrow, lung, spleen, kidney, liver, and salivary gland were unsuccessful. The virus would appear to be found in brain tissue, cerebrospinal fluid, and nasopharyngeal mucous membrane. The nasal mucosa is thought to be the path of infection. The virus is a living organism, the exact character of which has not as yet been definitely determined. The investigations, however, of Strauss that it is a minute filterable organism resembling that obtained by Flexner and Noguchi in poliomyelitis and those of DaFano & Ingleby that there are minute intra- and extra-cellular bodies, which may indicate the presence of a living agent as the cause of the disease, have attracted merited attention.

Many years ago I heard Sir Victor Horsley lecture at Queen Square on brain tumors. He laid especial stress on what he termed cardinal symptoms; in like manner I wish to call attention to the cardinal or dominant symptoms of epidemic encephalitis, whose "welter of symptoms" surpasses perhaps that of all other diseases. The hyperkinetic, positive, irritative phenomena constitute perhaps the most striking symptoms of the disease. Under this head we include myoclonic and fibrillary twitchings,—choreo-athetoid movements,—chorea, and epilepsy. Dubini's electric chorea of 1846 falls into this class. To von Economo, Ellis, Boveri, Hemill, Reilly, Ramsey Hunt, and others, we are indebted for reports of myoclonic cases. Sixty of Economo's 100 cases belonged to this class. Hunt calls attention to the fact that notwithstanding the severe and, at times, lethal infection of the nervous system, the lesions of the sensory and motor systems were irritative without evidence of paralysis and anesthesia. Spiller reports a case of myoclonic contractions of severe type in which the pathological findings showed marked cellular infiltration of the basal ganglia. While direct or indirect irritation of the lower motor neuron will account for some of the myoclonias, Barker believes that rhythmical muscular contractions are due to supranuclear irritation. Archambault reports three cases of choreo-athetoid movements occurring in encephalitis. The symptoms are recognizable in the initial stage. The accepted triad,—lethargy, asthenia, and diplopia,—were in the background. The spasmodic movements took the form of athetosis in the neck and face, while in the extremities the twitching resembled that of chorea. Grave choreiform movements associated with a wild delirium and hallucinations have been observed. He has reported four cases of the choreopsychotic syndrome. The distinctive features are the mental symptoms and the choreiform movements. The latter are not exactly the same as those of Sydenham's chorea, but resemble them very closely. In these cases the delusions and hallucinations related to the occupation of the patient. A case referred to me by Dr. O. O. Larsen, of Detroit, manifested widely distributed choreiform movements of moderate severity, which persisted for ten days or two weeks. There was a wild delirium associated with delusions and hallucinations; those of sight were especially distressing; the patient saw snakes everywhere, and complained of pain in neck and back of the head. The neck was rigid; the face was masklike; the temperature ranged from 98° to 103°; the pulse seldom exceeded 140. She developed phlebitis and an ulcerative endocarditis. Aside from globulin excess, serological findings were negative. Unfortunately the spinal fluid sugar was overlooked. Some physicians would class this as a case of choreic insanity because of the infective process. The toxic delirium, the masklike face, the rigid neck, the pain in the neck and head, and the globulin excess can mean only one thing. For many years medical literature has contained reports of cases of psychosis associated with Sydenham's chorea. Choreic insanity is a medical myth. Any form of insanity can occur during an attack of chorea,—an epiphenomenon, as it were. Such symptoms as this patient presented, however, can mean only one thing—encephalitis. Two of Archambault's patients died. Mine did the unexpected thing,—recovered.

Lethargy, although present in 80 per cent of the cases, is a dominant symptom. I saw a man a month ago who had an ambulant attack last January — of encephalitis. The one thing he complained of most was his desire to sleep. For two weeks he slept night and day; if he sat down in a chair he would fall asleep. He gave up his work and for two weeks did nothing but sleep. Good clinicians told him to "forget it"; there was nothing the matter with him. Nystagmus is quite often observed in lethargic encephalitis, especially in the earlier stages. Any attempt to move the eyes gives rise to flickring movements, which vary in rapidity, amplitude, and direction. (Bramwell.) I have seen one case that came on with the suddenness of an apoplexy. Bramwell has observed three of this type of cases; the difficulty in differentiating them from cerebral hemorrhage or occlusion of the cerebral arteries is very great. There are rare and aberrant manifestations of symptoms; such as multiple neuritis, a case of which I saw in 1918. Pardee's radicular type, anterior poliomyelitic, tabetic (Argyll-Robertson pupils, loss of deep reflexes, sometimes lancinating pains), and Howe's thalmic syndrome, types which possess great interest, but require further investigation. Marie & Levy have observed five cases in which postencephalitic movements were limited to the face and tongue; in one of these patients the movements came on six months after the onset and were only sequel. The movements ar rhythmical and involve the jaw, tongue, palate, and lips, and interfere seriously with the taking of nourishment. During the past two or three years there have appeared epidemics of hiccough in different parts of the world; they occur just before, during, or after an outbreak of encephalitis. Since there may be prodromal symptoms associated with a mild febrile disturbance, and as hiccough is many times a distressing symptom of encephalitis, these epidemics are thought by some to be an atypical form of this disease. The mask-like face indistinguishable from that of paralysis agitans, with or without the tremor, the monotonous voice, the everted dribbling lip, and the postural attitudes characteristic of this disease, are notable features in many cases. When tremor is present it is not of the rhythmical type usually observed in paralysis agitans. The first glance at the expressionless face gives one invaluable information; it is present in a great majority of the cases; in one of my patients after the acute attack this was practically the only symptom.

The Parkinson syndrome, as in one of my cases, may develop during the acute illness or years afterwards. Babinski and Jarkowski cite the case of a man who acute attack of encephalitis had occurred two years before; when examined a year later he had an expressionless face, but no tremor or rigidity; after another year the rigidity was marked, and the characteristic attitude typical.

Marie & Levy report the case of a woman who had an attack of encephalitis in 1918; this was followed by various types of involuntary movements; two years later she developed a typical picture of this disease. These writers believe that, whatever the symptoms of the acute stage, there may be left behind a well-developed Parkinson syndrome. As to the disappearance of this syndrome, Courtney is skeptical; although he has known this to occur, he has observed its transformation into a universal clonic myospasm, which lessened in intensity, but did not entirely cease. The points of differentiation between this symptom-complex and paralysis agitans according to Marie & Levy are absence of rest tremor, occurrence of tremor on movement, marked spasm of the lower parts of the face, difficulty in protruding the tongue, and frequent fibrillary twitching of the tongue.

Margaret Schulz states that she has been able to find in medical literature eight recorded cases of lethargic encephalitis associated with pregnancy; of these one recovered; five died and in two the outcome was not reported. In children encephalitis presents unusual features; a persistent insomnia after the acute attack is not uncommon, this frequently being only an outstanding symptom of an acute psychosis.

This brief survey of the dominant symptoms of a bewildering symptomatology would be most incomplete were not reference made to the chronic forms of lethargic encephalitis, of which the following cases are an excellent illustration of some of its many phases:

Case 1.—Miss A., referred by Dr. Archibald MacLaren, January 13, 1921; aged 28. Father died of appendicitis in fifty-second year; mother is in sixty-ninth year and well; five brothers and two sisters are all living and well; had the usual childhood infections, with smallpox in her twelfth year. Tonsillectomy was done four years ago. Before this there had been attacks of neuralgia, the pain being generally over the left eye; these attacks ceased after the removal of the tonsils. A year ago last fall she had ptomaine poisoning; she was in good health until an attack of influenza last March. There were high fever, headache, marked drowsiness, etc. After the influenzal attack diplopia developed, and the patient was very tired and drowsy; in this condition she returned to her teaching; shortly afterwards she complained of cold sensations over the vertex and pain, which was located over the left eye and diffused itself over the forehead; there was also pain over the nape of the neck and back of the head; there were vomiting and vertigo; she was subject to sensations of heat followed by cold and a profuse perspiration all over the body. There had been sharp, irregular pain in the arms and legs, also hallucinations of sight ever since the illness began, which had practically ceased. She had spells of being disoriented as to place and time. She had to give up her work frequently and go home; as soon as she was a little better, she would resume her teaching. In June, 1920, she greatly improved; the symptoms practically disappeared with the exception of the diplopia, which was much less marked. There were still present a cold perspiration and occasional mild headaches; she felt weak and exhausted. Since the first she has noticed that her mind was not as alert nor her memory as good as formerly.

In the latter part of October the symptoms returned; the headache greatly increased in severity and became unbearable; she became weak and was unable to sleep; the diplopia, however, disappeared. It was at this time that she consulted me. The movement of the neck muscles was very painful, and there was a Kernig in both legs. All the fall there were daily spells of vomiting and marked depression; the headache was so severe that she had to be kept under anodynes; the sinuses were negative; the suffering was so intense, she said, if opportunity had offered, she would have taken her life. There was Kernig in both legs. Blood pressure, 130 systolic; 80 diastolic; hemoglobin, 82 per cent; red blood cells, 4,360,000; white blood cells, 11,800; urine showed a trace of albumin. The pressure of the spinal fluid was normal; no globulin; 4 cells per c.mm. and goldsol reaction 0001100000. She left the hospital April 15 perfectly well.

Case 2.—Dr. O., aged 44, had an attack of encephalitis on January 20, 1920. His symptoms were of the classical type. After its acuteness had subsided, he being the only physician in his village and influenza being epidemic, he got up out of his sick bed and did what medical work was absolutely imperative, which included some confinements; he gained slowly, but never regained his normal strength. In March he noticed that he was losing strength; he was also much annoyed by a persistent vertigo. There developed at this time a transient right facial palsy. When examined by me there was marked incoördination of the right arm and leg; Rombergism and Babinski in both feet; no sensory changes. There were choreiform twitchings at night, speech slow and slurred, Parkinson face; serological findings, negative aside from a gold sol. reaction in the syphilitic zone. His stay in the hospital was without noticeable benefit. A letter from his wife a few days ago states that there have been some variations in symptoms. He cannot walk unaided; when he left me he was able to get around with aid of a cane. The inability to walk is due to incoördination, not the loss of motility. There has also developed a rhythmical tremor of the fingers of the right hand, which sometimes continues during sleep. The slurring speech is not so marked, but he speaks more slowly and enunciates less distinctly; he has gained ten pounds in weight, sleeps well; his mentality is unimpaired.

These cases suggest a progressive infection of the nervous system. Chronicity possesses a double meaning: that of duration and, in addition, that of "an active change or process." It is the existence of the latter that makes recognition of these cases so important and affords therapy at least a chance to avert ultimate disaster. As to the nature of these chronic forms little is known, and as to the character and scope of the pathological forces at work and the ability of nature to come back under such adverse conditions, one as yet can only conjecture. From 20 to 40 per cent of these patients die during the acute attack. In the chronic forms, if recognized and properly treated, 50 per cent of recoveries may be obtained. In a majority of the patients that survive the acute attack the cranial nerve and other palsies, as well as the mental disturbances, disappear. (Courtney.)

The distinguished Chicago Divine, Dr. Gunsaulus, once asked his friend, Mr. Armour, if he were a visionary. Mr. Armour replied, "Oh, I don't know, but there is a good deal of daylight between your feet and the earth." In my discussion of the classification of lethargic encephalitis, I cannot help but feel that there has been a good deal of daylight between my feet and the earth, and for this I crave your indulgence.

~~DIFFERENTIAL DIAGNOSIS AND~~ TREATMENT OF EPIDEMIC ENCEPHALITIS*

By Arthur S. Hamilton, M.D.
MINNEAPOLIS

The multiform symptoms of syphilis of the nervous system often give rise to the statement that syphilis may simulate almost any other disease of the nervous system. In the great diversity of symptoms of epidemic encephalitis we have recently found another disease to which the same statement can be equally well applied. Seeing also that in encephalitis we largely lack the laboratory findings which are so useful in the diagnosis of syphilis, we may well be pardoned for the mistakes which have frequently occurred in the diagnosis of this condition. Furthermore, in the diagnosis, we must proceed on the principle that there is no clear and constant type. The essential change is an inflammation of the brain; and in an organ with so many important functions and with the lesions so widely spread, the symptoms necessarily will vary with the location of the lesions. Moreover, the symptoms vary greatly in epidemics in different localities. In one community the onset is acute, delirium is present, meningeal phenomena are pronounced; and in any single case it is very difficult to diagnose, by clinical signs, as between epidemic encephalitis and ordinary forms of meningitis. In other epidemics the onset is much more gradual, often following a condition like influenza, and a subsequent asthenia and lethargy with definite cranial nerve paralysis make the diagnosis easy. In every epidemic, also, there occur transitional forms; and in any large epidemic instances of almost all forms occur in the same community at the same time, though some one particular form is usually predominant.

Onset: In my own experience the onset has usually been gradual, though the exact opposite has been true in many epidemics, including some even in our own state. The most common and obvious early symptoms are headache and general pains, chills or chilly sensations, general weakness, and a rise of temperature. Although the temperature is occasionally normal, it is most often in the neighborhood of 101° or 102,° occasionally rising to 103,° 104,° or even higher. Subsequently there appear lethargy or excitement, cranial nerve palsy, and the symptoms of the various special types of the disease, such as the choreic type, the Parkinson type, and other forms so well described by Dr. Riggs. In certain cases of sudden onset there may be severe pain in the head, delirium, and high fever, with convulsions almost from the outset. If the patient survive this early stage, lethargy and cranial nerve paralyses may appear later.

Lethargy: Of all the symptoms of the disease probably none is quite so characteristic as a condition of lethargy, which usually appears fairly early, and from which the name lethargic encephalitis is derived. It is now well established that lethargy may be absent at all stages, or, if once present, may be followed by insomnia; or the insomnia may precede the lethargy and the insomnia may prove a very troublesome feature throughout the course of the illness. At some stage, however, lethargy is present in a very large percentage of the cases, and, when present, it has certain characteristic features. It comes on gradually, the patient appears dull or dazed at all times, and his hours of sleep are greatly increased. The lethargy is rarely so great but that the patient may be aroused by being spoken to or by some unusual stimulus, and, when once awakened, his mind is fairly clear and he answers more or less intelligently. When no longer disturbed he again promptly falls asleep, and this is seen in a most characteristic way when the patient falls asleep in the midst of a conversation into which he has previously entered intelligently or in the midst of eating a meal which apparently he has been enjoying.

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The following is a typical instance of the most common type of lethargic encephalitis:

Case 1.—Mrs. R., aged 47, married.

Spinal meningitis at five and fourteen years of age. Following the second attack she was blind in the left eye and paralyzed in the right arm and leg, but not in the face. After six months she recovered from the paralysis and loss of sight, and made a final full recovery.

About October 25, 1919, without a history of cold or anything resembling influenza, she developed headache, vomiting, and fainting. Her temperature was 101.° The next day she went to sleep and slept continuously for four days except when aroused. She would wake to eat, get half through her meal, and go to sleep again. She continued to sleep an unusual amount up to the time of my first seeing her, November 25. At that time she was able to go out and was clear if aroused, but was much distressed in mind and said she felt as if something heavy were over her, holding her down. At this time she slept from twenty to twenty-two hours per day, and her temperature was in the neighborhood of 100°-101.° One week before my visit she developed left facial paralysis, left ptosis, and left internal squint with diplopia. The left pupil was a little larger than the right.

In December she gradually improved, and the weakness in her face had largely disappeared, but she still had ptosis and diplopia and was very tired and easily fatigued. She slept soundly at night but very little in the day. She continued depressed and did not impress one as altogether clear. Her temperature at this time was about 99.° Early in January she had a relapse, again slept nearly all the time, had little ambition, thought she would never be cheerful again, and said she often felt like committing suicide. At this time her temperature was practically normal.

There was no rigidity of the muscles, but she had some pain in the back and left side of her neck throughout her illness. The fundus of the eyes was normal at all times.

By the middle of January she was again better and subsequently improved rather rapidly and at the end made an apparent complete recovery.

A more complicated case was the following:

Case 2.—W. P. Y., male, aged 27, married, manager of a lumber yard.

His previous health was excellent, but he had an attack of influenza of moderate severity shortly before he was discharged from the army, in March, 1919. Subsequently he thinks he was never quite so well, but at least he managed to return to his occupation and did his work satisfactorily.

The night of September 20, 1919, he was very nervous and could not sleep. The next day he had some stomach trouble and no appetite. He continued nervous and restless subsequently, and on the second night his headache was so bad that he was given morphine. He developed double vision at that time, and a diagnosis of tuberculous meningitis was made. He complained of being very sensitive to touch, said that "every nerve felt sore," and complained habitually of a special tenderness in his arms. He recognized his family and knew where he was, but much of the time he talked incoherently, and it was very difficult to get him to stay in bed.

When I saw him, September 24, his temperature was 101,° and his pulse was 120. He then had double ptosis, the left external rectus muscle was weak, and there was marked double vision. There were pain and tenderness more or less all over his body, but especially about the right wrist, though there was no swelling at the latter point. A spinal puncture was made, and the fluid was normal except for a moderate increase in pressure and a count of fourteen cells. The white blood cells numbered 11,200. There was marked motor restlessness, somewhat resembling chorea, but the movements were grosser and more purposeful. This was especially noted in the movements of the arm. He was restless and continually tossing about in his bed. He appeared tired or even sleepy, but he actually slept very little, even with sedatives. A few days subsequently he developed a well-marked condition of herpes over the lips and eyelids.

Throughout the remainder of September and during the months of October, November, and December there was not much change in his condition. His temperature was in the neighborhood of 100° to 101,° and his pulse varied from 110 to 130. He complained of general pain and apparently suffered a good deal. After the first three weeks his insomnia disappeared, and he developed a corresponding degree of lethargy. He was always confused and some of the time quite delirious.

In the middle of January, 1920, his general condition was certainly better, his mind was clearer, and at times he was quite rational. He still complained of severe pain in the extremities. At about this time he developed a certain lack of distinctness in his speech, his face showed a mask-like expression, and he complained of a great deal of difficulty in respiration. At times this difficulty in breathing was so great that he expressed the fear that he would suffocate. There was a marked tremor of the facial muscles and of the hand. His double vision was less marked at this time, and he was able to open his eyes without wrinkling his forehead

One week later his speech was still more indistinct, he said his tongue was stiff, and his breathing was a matter of continual effort. The pain was a little better at this time. His temperature was normal.

By the middle of February his pain was a good deal improved. The double vision and ptosis had practically disappeared. When fully awake his mind seemed clear, but when half asleep he would be picking at objects in the air and about his bed and would talk more or less like one in delirium.

At the time this article is written the patient is still under observation. He is now doing clerical work fairly well, but says that he often falls asleep at his desk two or three times a day, and when this impulse to sleep comes he is practically powerless to resist it. His articulation is good, but even at this time he has some difficulty in getting his breath, especially after any unusual exertion. His diplopia and ptosis are wholly gone. He is distinctly lacking in energy as compared with his condition previous to the onset of his illness.

Involvement of one or more of the cranial nerves is very common, the motor nerves of the eye being most often affected. The patient may, therefore, at an early stage complain of double vision, transitory or permanent, and of dimness of vision. Drooping of one or both upper eyelids is frequently seen. There is often an inequality and irregularity of the pupils, and there may be an Argyll-Robertson pupil or a complete fixation of both pupils. In other words, the ocular examination may point very strongly to the existence of syphilis. Nystagmus also is not rare.

The following is one of the best instances I have seen of involvement of the motor oculi nuclei:

Case 3.—Chronic valvular endocarditis and myocarditis: Miss B., aged 50, a teacher, single. Got up in the morning of October 7, 1919, to go to school and suddenly felt ill. She fell over on her cot and was found in a condition of semistupor. There was severe vomiting during all of that day, and the stuporous condition increased in severity. By 9 P. M. she is said to have been completely paralyzed on the left side and in the right foot. She moved the right hand when pricked by a pin, but not other parts. There was a complete paralysis of the muscles moving the upper eyelids so that her eyes were closed at all times. There was also a complete paralysis of the sphincter of the pupils so that they were widely dilated. There was practically no movement of the eyeballs. She gradually regained partial power in her extremities, but the paralysis of the eyes remained. At all times she was dull and often delirious. Her highest temperature was 102.4.°

She was seen by me on November 27, 1919. She was still in bed; and at this time and during all of her preceding illness she was sleeping most of the time. Her left hand was weaker than her right, and there were coarse choreiform movements in both hands, but especially in the left. There was very fair power of movement in both lower extremities. There was no marked reflex disturbance. With considerable difficulty her attention could be attracted and held. She said she felt tired all the time, but had no pain. She talked in rather a childish way. There was considerable confusion as to time, place, and persons. At my examination the white blood cell count was 11,200, and the spinal fluid was negative except for the presence of ten cells. The ptosis was still complete, and the pupils were widely dilated and there was no reaction whatever either to light or accommodation. The only movement possible in the eyeballs was very slightly outward.

This patient improved gradually, and there was a final full recovery so far as the use of her legs and arms was concerned, but the ptosis and the paralysis of the pupillary and external ocular muscles remained.

Facial paralysis has been described a number of times as seen in Case 1, and involvement of the eighth nerve is seen not rarely in tinnitus, deafness, and dizziness. Cases occur also in which the bulb becomes deeply involved in the inflammatory process, and in such instances the lower cranial nerves show definite defect, such as difficulty in speech and in swallowing.

The eye-grounds are usually normal or show only very slight papillo-edema, but a few cases of definite choked disc in epidemic encephalitis have been reported; and, when one states that as many as seven cases of choked disc with operation for brain tumor have been reported in a single issue of a journal from so great a neurologic center as Paris, it must be accepted that choked disc and other signs of intracranial pressure of a high grade may occur in encephalitis. I have seen one case in which, in spite of the presence of a marked double choked disc, I made a diagnosis of encephalitis, which later proved to be incorrect, as against brain tumor; and I have seen one other case in which a similar diagnosis had been made, though I was not able to concur in it.

Motor phenomena: Paralysis of the face and of the ocular muscles, as already stated, is common, but paralyses of the extremities, such as hemiplegia, monoplegia, and paraplegia, are only infrequently seen. Case 3 and another similar instance are the most marked I have seen. When present, such paralyses may be followed by spasticity and by corresponding changes in the reflexes, such as clonus and plantar extension. Much more common than these actual paralytic and spastic states are certain alterations in muscle tonus, forming, when well developed, the peculiar Parkinsonian type of encephalitis and also appearing in states of catatonic stupor and catalepsy. Lesser degrees of this increase of muscle tonus will cause the appearance of a mask-like face, even in individuals who may hardly be said to develop the true Parkinsonian syndrome.

The following is one of the best cases I have seen of the Parkinsonian type of encephalitis lethargica:

Case 4.—Dr. X., aged 50, about Christmas, 1920, had a rather severe cold, but was better after a few days and returned to practice. Those who saw him closely said he "did not look just right" afterward.

About the 20th of January, 1921, he had an attack of tonsillitis, which was followed by pain over the entire body. He grew gradually weaker, and his maximum temperature was 102.°

He was seen by me February 3, 1921. At that time he was very restless, especially at night, and was said to be slightly delirious. He was very weak the morning I saw him. There was no headache, vomiting, or double vision, and there was no special tendency to sleep at this or any other time in the course of his illness. He complained of some general pain, and there was some hypertonia observed in all the muscles at the time of the examination. This hypertonia, however, was particularly marked in the left upper extremity, and in the left hand there was a typical tremor of the paralysis agitans type with a typical Parkinsonian facies.

From the more severe phenomena of his disease this patient made a rather rapid recovery, and after about ten days the tremor had wholly disappeared. The spastic face, however, remained for some time, though gradually growing less in evidence. At the present time the patient has made an apparently complete recovery.

A much more severe instance of the same type appears in the following case:

Case 5.—Miss Y., aged 21, single, had influenza two years ago with pneumonia. She was very ill at that time and recovered slowly, but her final recovery was apparently complete. Her tonsils were removed four years ago.

The exact onset of her illness is not known. She had been working away from home and returned to her mother on April 1, 1920. At that time she would sleep almost constantly, and her mother says she would fall asleep when eating at the table and when anyone was talking to her. She complained of nothing but weakness and was very much disinclined to enter into conversation. Her mother thinks she had some fever at this time but as she had no physician this is not certain. The sleepy tendency remained all of the summer, and she was in bed most of the time.

In the latter part of the summer she began to have pricking in the left arm and leg, and began to lose power in both legs. For a time there was no movement whatever in the left arm. She gradually improved and finally was able to take walks and to feed herself, but one month previous to my examination she became decidedly worse. Her neck was stiff and pained her, and she moved it with difficulty. She was delirious, and her mother thinks she had fever. Stiffness developed later through all the left side. There was definite lack of control of muscles, and she would reach for objects and miss them. There was swelling in the left knee, worse one month ago. There was no difficulty in vision. Her speech was said to have been indistinct since the preceding winter.

At my examination, February 2, 1921, the patient presented the typical mask-face of an advanced case of paralysis agitans. She had the stooped posture, general muscular hypertonia, and an entirely typical paralysis agitans tremor in both hands. She was able to move the left arm, but lacked control. She was oriented as to time, place, and persons, and could enter fairly intelligently into conversation if pressed to do so. Ordinarily, she talked very little and seemed to take no interest whatever in books or papers. I have heard from this patient once, several months later, and there was no improvement in her condition.

The following case presented at one time typical symptoms of catatonia and was looked upon as a case of dementia precox of the catatonic type.

Case 6.—Miss C., aged 24, single, stenographer.

There was considerable tuberculosis in the family; her father was nervous, and one uncle was insane.

The patient was a quiet, reserved individual, always very sensitive. For fifteen months preceding her present illness she had worked as a stenographer in a very responsible position. At Christmas time, 1920, she was very tired and said that her eyes twitched and that objects would blur before her. She was at home at this time for a short vacation, but on January 9 she returned to her work, though she still complained of feeling tired and said that she thought she was developing a cold; however, no symptoms clearly resembling influenza developed. On January 26 she was required to quit work because she appeared so ill and would go to sleep while on duty. She was seen by her physician on January 29. At that time she would talk very little and ate very little and very slowly. She said she had no appetite. Her sister states that she would hold food suspended in the air for some little time before swallowing it. She would also fall asleep when anyone was talking to her. There was a possible slight ptosis, more marked on the left than right, but she was able to open her eyes. She grew gradually worse, but up to February 3 her temperature was normal. After that it was in the neighborhood of 100° for a time, and she was much more dull. The urine was normal.

Subsequent to February 3 there was a marked muscular hypertonia. It was impossible to tell how much she slept as she appeared to be asleep more or less all the time, yet from the things she did occasionally it was assumed that she had not been asleep. There was some difficulty in swallowing.

She was seen by me on February 6, 1921. At this time there was a marked condition of waxy flexibility and a condition of resistance to all requests made of her, very similar to catatonia, but in view of the history it was assumed that the case was one of encephalitis lethargia. On February 9 she became considerably worse, and her temperature rose to 104° and her stupor deepened. On February 14 there was twitching of the face and jaws with marked interference with breathing. The stupor was very deep, and it was impossible to get any response from her. On February 16 her breathing was slightly better, but on the 17th it was again very bad, and she was distinctly cyanosed. The facial muscles were very rigid; her mouth was open, and her pulse irregular. On February 23 she had a spasm of the muscles of the throat, and a few days later she died.

Peculiar conditions of increased motor irritability have also occurred in certain epidemics of encephalitis. One of the most interesting of these is a peculiar rhythmic twitching of the abdominal muscles or a similar contraction of the diaphragm, producing persistent hiccough. Definite choreiform syndromes, quite like the ordinary chorea of children, have also appeared many times and fibrillary and fascicular twitchings, myoclonias, and epileptiform convulsions, general or local, and other evidences of marked motor irritability are not rare.

Case 7 illustrates rather well the rhythmic twitching of the abdominal muscles.

Case 7.—Mrs. M., aged 21. When about fourteen years of age she had some sort of nervous breakdown lasting several months with apparent final full recovery. About January 1, 1921, she developed a sore throat and subsequently pain in one shoulder which became quite severe. A few days later she began to have violent contraction of the diaphragm and abdominal muscles at the end of each expiration. Contractions in this location lasted somewhat like five days and then went down into the thighs, legs, and feet. The jerks came from 15 to 20 per minute, and as she grew better they came at gradually increasing intervals, and when I saw her, on February 18, 1921, had largely disappeared.

Throughout her illness she had a constant rise of temperature but never above 101.° About five days after her illness began she became delirious, and this lasted about three weeks. At this time she was so noisy and troublesome that she had to be removed from a hospital on account of the comfort of the other patients.

At the time I saw her she was usually rational, but querulous and childish. She had occasional hallucinations. Her chief complaint was of weakness, and she often cried in describing her feelings. She had lost twenty-five pounds in weight. She was able to walk, but very unsteadily. She complained more or less of pain through her body at times, but there was no sensory loss. She could see well. Her pulse had been rapid at one time, but was only slightly above normal when I saw her. She was very much depressed.

At the time of my examination, on opening her mouth there developed at once a periodic contraction of the masseters and of the tongue, and this continued as long as her mouth was open. It was never present when her mouth was closed. There was also a contraction of the lower abdominal wall on the left side, but none on the right and none in the legs or thighs. The contraction was rhythmic and at the rate of about 15 per minute.

Case 8.—Miss L., aged 20, student, had influenza in the fall of 1918 and was delirious and very ill. She improved and gained in weight from one hundred and fifty to two hundred pounds and seemed quite as well as ever. In September, 1919, she lost fifteen pounds in weight without apparent cause, though she said she was run down and easily fatigued. Toward the end of February, 1920, she had rheumatism, and her ankles became swollen. About one week before the rheumatism appeared her sight became impaired in both eyes, including the presence of diplopia. After three or four weeks the rheumatism disappeared, but at that time she began to be dizzy, and in a week was scarcely able to walk. This difficulty in locomotion was much more marked in the left leg than in the right. There were twitchings in both feet and legs, but were worse on the left side.

She was seen by me on May 15, 1920. About five weeks before she had noticed numbness in the left hand, beginning in the little fingers and gradually spreading to the other fingers. Later the left foot also became numb. Her diplopia bothered her considerably at this time. She was unable to use the left arm because it was so awkward. Objects dropped from this hand repeatedly when she picked them up, and she said this was because she could not appreciate their touch. In March she is said to have been greatly troubled by insomnia, but for two weeks before I saw her she had been very sleepy, and the latter condition continued for somewhat like three weeks after she came under my observation.

On examination her temperature was 98.6°; pulse, 82. The left pupil was larger than the right, and there were diplopia and lateral and vertical nystagmus. There was a marked loss of touch, prick and pressure sensibility in the left hand and arm, and also of the sense of position and of vibration. The left hand drooped when extended. There was impairment of motor power in all of the left side, but the right side was normal as respects motion and sensation. Subsequently she developed marked sense of vertigo. Objects seemed to whirl about her, but she could not see that they whirled in any definite direction. Her temperature rose to 102.5° and continued in this neighborhood for somewhat like two weeks. At this time she also developed a double plantar extension.

Her recovery was very slow, and after three months she was able to walk only with great difficulty. I do not know the final result.

When one recalls the situation of the most pronounced anatomical changes in encephalitis, namely, in the lenticular nucleus, the optic thalamus, the red nucleus, and the subthalmic regions generally, and the intimate relations of the internal capsule with its motor fibres to all these structures, it is not surprising that one should see in this disease an abundance of variable motor symptoms, or that certain of its types should so clearly simulate definite diseases, such as paralysis agitans and children's chorea, whose anatomical pathology, so far as we know it, lies in identical areas.

The following two cases are fairly typical of the choreiform type of encephalitis lethargia and the latter shows the air hunger which occurs in some cases.

Case 9.—Miss M., aged 19, student, seen February 1, 1920. Her illness began January 20 with dizziness and pain in the neck. The next day she had a temperature of 100,° and her neck was very stiff, and at this time meningitis was suspected. Later she became very restless, "like chorea," and picked at objects in the air. She was also very dizzy. On January 27 she had double vision, which lasted for three days and did not subsequently appear. Her temperature at this time was 102,° and her pulse 96. On the seventh day she developed a drooping of the eyelids and complained of a general soreness and of sensitiveness to light. She was continuously drowsy throughout her illness, but said she did not sleep. At times she talked peculiarly and was in a slightly delirious condition. At the time of my examination she had a marked double ptosis. The pupils were unequal and rather sluggish to light. There were peculiar jerking movements in both hands and arms very much like ordinary Sydenham's chorea.

Case 10.—Miss F., aged 7. One year ago the patient had influenza. From this she seemed to make a good recovery, but for some time past she had had pain on bending over. She could not well locate this pain. There were occasional attacks of urticaria.

On November 4, 1919, she fell part way downstairs into the basement. She was able to walk upstairs, but complained of her back. That night she was very restless and had headache and fever. The next night she was more restless and had double vision, which has continued since. During the day she had crying spells without cause, and the following day was delirious and heard her teacher calling her. She would pick flowers out of the bed. She is thought to have had a high fever at this period, but her temperature was not taken. There was a marked crossing of the eyes. At this time she also began making "chattering noises," and there is said to have been a shaking of the lower jaw. About the eighth or ninth day of her illness she became drowsy—this lasted about one week, and she then seemed better in every way. In December she began to have "attacks of panting respiration with yawning and chewing her tongue." She had had a drooping of the eyelids in the early part of her illness.

She was seen by me February 6, 1920. At that time her temperature was 99.2°; pulse, 111; left pupil larger than the right; slight drooping of the lids and a definitely mask-like face. She had movements so much like those of ordinary Sydenham's chorea that this diagnosis had been made by one physician.

She was seen again September 8. 1920. At this time she was restless and inclined to be irritable and had attacks of puffing breathing. Three weeks before she is said to have had a spell of dizziness and had several hard falls, but is thought not to have been unconscious. She herself stated that things would go black before her, and she could not remember afterward what she had been doing. During these attacks the left eye was said to turn in markedly. Under ordinary conditions her double vision had disappeared.

Subsequently she had a number of attacks in which she would fall over and as these grew worse her panting grew gradually better.

Disturbances of the reflexes: In the ordinary case of encephalitis, the reflexes, either superficial or deep, are not greatly altered, but when definite paralyses appear either of upper or lower motor neuron type, corresponding changes appear in the reflexes, including increase or decrease, Babinski's sign, and clonus; and even without definite paralyses there may be some reflex disturbance if the motor paths are interfered with to only a limited degree.

Inco-ordination: Disturbances of co-ordination, as ordinarily reported, are neither frequent nor marked and, if present, are usually of the cerebellar type. It so happens, however, that, in the cases seen by me in this neighborhood, there have been some striking conditions of inco-ordination, in one instance quite equal to that seen in a cerebellar tremor.

Sensory changes: Disturbances of sensation are much less marked than those of motion, and they conform so little to type as not to be of great value in diagnosis. Definite loss or diminution of sensibility is certainly rare, but is reported occasionally and has been present in three cases personally observed. Various vague pains of more or less neuralgic type are common and are located in head or face, body or extremities. (Case 2.) Perhaps the most characteristic sensory change is that seen in the so-called meningo-radicular type of encephalitis with ascending or descending sensory changes. In this type a severe pain appears in some parts corresponding to the distribution of a certain root distribution and the pain may be followed by a diminution or loss of sensation in the same region.

Two of my patients have shown extensive herpetic eruptions in the course of the disease, both times in individuals with marked evidence of general neuritis.

Laboratory findings: The laboratory findings, like other features, have varied in different epidemics. Some men, after apparently satisfactory investigation, report no increase of cells in the cerebrospinal fluid. Most men, however, disagree with this and find a cell count from slightly above normal to as high as 100 or 150 per cubic millimeter. The highest count I have seen locally has been 57, and the highest in any case of my own has been 34. In certain very serious epidemics, however, the cell count has habitually run as high as from 100 or 150 cells. This increase of cells is always made up of lymphocytes. There is a mild increase in the globulin reaction and little if any tendency for the fluid to clot. The gold test is not characteristic. The Wassermann is always negative and no bacteria are found. The cerebrospinal fluid is clear and ordinarily not under much increase of pressure.

There is a moderate increase in the leucocytes of the blood. The urine is negative.

Even bearing in mind all these differential factors, the diagnosis of encephalitis is far from easy in certain cases. When an epidemic prevails we naturally are more quick to suspect encephalitis than at other times, and we perhaps make that diagnosis more often than we should, but in the absence of an epidemic and when we are dealing only with sporadic cases, we are equally likely to pass up instances which we ought not to miss.

There is no condition which has caused me so much anxiety in its differential diagnosis from encephalitis as tuberculous meningitis. In the presence of a strong family history of tuberculosis or exposure to tuberculosis we naturally think of tuberculous meningitis; and in the absence of such a history and in the presence of an epidemic of encephalitis, we naturally think of the latter. But here we have really only presumption and not proof. In tuberculous meningitis we expect the cerebrospinal fluid pressure to be higher, the cell count to be larger, perhaps from 150 to 600, and the Nonne reaction and the clot to be more marked. Yet after all in those cases of encephalitis where the meningeal irritation is great every one of the conditions mentioned above as referring especially to tuberculous meningitis may be duplicated, and the only differential feature on which we can absolutely rely is the presence of tubercle bacillus in the spinal fluid. Sugar reaction is greatly reduced in tuberculous meningitis and probably not in encephalitis.

Brain tumor is another condition difficult to diagnose at times from encephalitis. Ordinarily, the brain tumor symptomatology appears more slowly and without fever and without leukocytosis. The mental state is not altogether unlike in the two conditions, though in encephalitis there is a rather greater tendency to sleep, and in brain tumor there is rather greater evidence of actual intellectual deterioration. A spinal fluid test would probably settle the diagnosis, but in the presence of a definite choked disc a spinal puncture is by no means a safe procedure. Choked disc is very common in brain tumor and uncommon in encephalitis, but it occurs at least sufficiently often in the latter condition so that we cannot rely upon it as an absolutely differential sign. So far as I know, no cases have been reported of optic atrophy in encephalitis.

From syphilis we can usually make the differential diagnosis by means of a study of the cerebrospinal fluid, but in the few cases of syphilis of the nervous system in which the usual serological findings are lacking we must depend on other evidence. Ordinarily, in the diagnosis of syphilis we rely greatly on the findings in the pupils, but, unfortunately, encephalitis can duplicate every symptom that syphilis can produce at this point. Even granting that certain individual symptoms may appear alike in the two conditions, it is extremely unlikely that all the symptoms taken together would be alike in the two diseases. Certainly, the typical sensory changes of syphilis of the nervous system are never duplicated in encephalitis.

Besides the special conditions I have already mentioned there are many other clinical entities in which a differential diagnosis would be more or less difficult. Paralysis agitans, chorea, insanity, and neuritis may all easily cause confusion; and, as between encephalitis and the early stages of influenza or of almost any of the acute infectious diseases, a differential diagnosis would be almost impossible.

In brief, then, a differential diagnosis of encephalitis must never depend on the presence or absence of any special symptom or group of symptoms, but must be determined by the character of the onset and course of the disease, by a study of the signs and symptoms and by the elimination of other pathological conditions which are capable of producing more or less similar symptoms.

Treatment: Many different lines of treatment have been discussed, but up to date nothing has been found which has given general satisfaction; and, in particular, no specific serum or vaccine is known which might serve either to cure the disease or develop an immunity. Antitetanus serum, antimeningococcic serum, and diphtheritic serum have all been used intraspinally, as has also blood serum from a father and from a convalescent. Silver salts have been used intravenously, and for all of these different lines of treatment there has been some clinical evidence as to their value, but the evidence is unconvincing.

The only treatment of which we are sure at the present time is purely symptomatic. During the early stage and for a considerable time afterward the patient should be confined rigidly to bed, for there seems definite evidence that getting up too soon conduces to relapses which have developed in many cases. Active elimination from the bowels and kidneys is an important matter, as it would be in any other febrile condition. Liquids should be given in abundance, and feeding should be at least fairly liberal, for there is a very strong tendency to development of emaciation in this disease. For the restlessness and insomnia the bromides probably remain the best and safest drug. Where their action is not sufficiently powerful paraldehyde will perhaps avail, and various sedatives may be tried in very difficult cases. In cases of active delirium probably nothing is so useful as the hot pack or warm bath. For the tremor, especially the agitans type, hyoscine hydrobromate, gr. 1/150 with codeine sulphate, 1/4 gr., may be given three times a day. During the stage of convalescence, a prolonged period, massage and hydrotherapy with general rest cure are more or less essential, and in this period tonics are of considerable value.

THE PATHOLOGY OF EPIDEMIC (LETHARGIC) ENCEPHALITIS*

By Charles E. Nixon, M.D.

MINNEAPOLIS

From the standpoint of etiology perhaps the most notable fact is the relation of epidemics of influenza and of encephalitis. There has also been considerable speculation as to the relationship of this disease to poliomyelitis and even to meningitis.

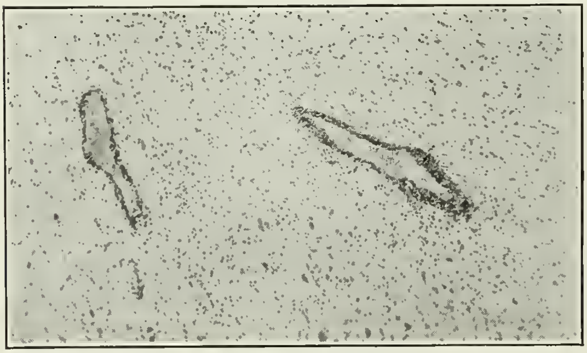

Fig. 1. Section from the pons showing perivascular infiltration, extravasation of blood about the vessel, congestion of capillaries, increase of glia nuclei, and well-marked chromatolysis of the nerve cells.

In 1917, v. Weisner was successful in culturing a gram-positive diplococcus from a monkey which had previously been inoculated intracranially with an emulsion of the brain and cord from a case of encephalitis. In 1919, Strauss, Hirschfeld, and Löwe produced lesions in monkeys by inoculation of human brain emulsion. Inoculations from washings of the nasopharynx produced paralysis in the monkey accompanied by pleocytosis. They found the virus to be filterable.

Later, in 1920, they were able to grow from the virus an anaërobic organism on the kidney tissue ascitic medium of Smith and Noguchi. Under dark field illumination the organism occurs as minute globular refractible forms occurring singly in diploidal form, chains, and clumps. Young cultures are gram positive. The older cultures tend to be gram negative. They have carried the organism through to the sixteenth generation. Pure cultures were obtained in fifteen out of twenty-three filtrates of nasal washings. In eight instances the organism was recovered from the brains of rabbits injected with the virus obtained from nasal washings. They found the organism to reside in the nasopharynx, brain, and spinal fluid, and that it is different from the organism causing poliomyelitis.

Tilney and Riley found a diplostreptococcus present in the fluid upon incubation, on culture, and in the stained smear. Hala and Smith reported a case with evidence of meningeal involvement that showed a motile, gram-negative bacillus in smears from the cerebrospinal fluid, and laboratory animals died three to seven days after inoculation. The authors state that "the cultural characteristics of this organism on sugar coincide with those of no other organism which we know." Their conclusion is that "the bacillus probably belongs to some intermediate class of the colon-typhoid enteritidis group."

Numerous reports of pathologic studies on epidemic encephalitis have appeared, and all agree that the most constant and characteristic lesion is a perivascular lymphocytic infiltration in the basal nuclei and brain stem. There is also some diffuse infiltration; and both types of histologic alteration may be found in other parts of the central nervous system. The infiltration is made up largely of small mononuclear cells; other types of cells, especially plasma and endothelial cells, are also present. In this respect the pathology is not essentially different from that of poliomyelitis, syphilis, trypanosomiasis, rabies, and other diseases.

In addition to the above, there is frequently present congestion with markedly dilated capillaries, softening of the gray and white matter of the brain, punctate hemorrhages, especially in the brain stem and in the lenticulostriate complex, increase in the glial tissue, degenerative changes in the nerve cells and myelin sheaths, and edema and thickening of the meninges.

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*Presented before the Hennepin County Medical Society, December 5, 1921.

The most striking part of the picture is the lymphocytic infiltration about the congested vessels. The perivascular infiltration is largely in the adventitial space, the space of His being relatively free. Among the lymphocytic cells are found a greater or lesser number of plasma cells with eccentric rounded nuclei containing chromatin granules with a wheel-like arrangement and often a vacuole bordering on the nucleus. Polymorphonuclear leucocytes are not a part of the picture.

The smaller vessels, especially, are congested with blood, and many of the capillaries stand out very prominently. In the areas most involved small hemorrhages are often present. Also, there are often free blood cells in the perivascular space of His.

The nerve cells commonly show some pathologic changes, and occasionally these structural alterations are very marked. The cells most frequently involved are those in the pons, mesencephalon, and basal ganglia, but those in the cortex and medulla oblongata may also present abnormalities. The cell changes vary from slight abnormalities in the arrangement and staining reactions of the chromatin granules to almost complete disintegration of the neurone cell. Satellitosis is commonly seen about the cells showing moderate or severe chromatolytic changes. Occasionally the picture of advanced neuronophagia is seen. Pigmentation of cells in locations other than the locus ceruleus has been observed.

Degenerative changes are also found in the myelin sheaths; these consist of bulbous enlargements, irregular thickening, and occasionally actual fragmentation of portions of the sheath.

Slight cellular infiltration or edema of the cerebral meninges is not uncommon, but, as a rule, the meninges are relatively uninvolved by the pathologic process. A few cases have, however, shown a marked involvement of the meninges with exudation, edema, and hemorrhage.

THE RADICAL MASTOID OPERATION*

By J. G. Parsons, M.D.
SIOUX FALLS, SOUTH DAKOTA

The message of modern otology to medicine is concerned not more with the conservation and improvement of the special sense of hearing than with the relation of the ear and its environs to the life and health of the patient.

As has been aptly stated by Barnhill, "Few divisions of medicine have received more careful study from the standpoint of their anatomy, pathology, and technic of operative treatment than has been bestowed in the recent past upon the chronic suppurative diseases of the temporal bone."

With the knowledge so gained at our disposal we can safely state that all infections of the middle ear are potentially dangerous to life and health, and that this is especially true of the chronic infections. There is danger of extension into the cranial cavity, leading to meningitis and abscess; involvement of the lateral sinus, leading to general sepsis; and the more insidious focal infection always present in chronic closed suppurations.

There has been a marked improvement in our attitude toward acute mastoiditis in the past few years. Every modern practitioner is alive to the fact that the mastoid process is often involved in acute middle-ear suppurations and takes particular care to look for the early symptoms of mastoiditis. There is still a somewhat indifferent attitude, however, toward the running ear which is not accompanied by the symptoms of pain, tenderness, and swelling. This attitude of indifference is more especially noticeable in the case of the chronic running ear. The fact that a discharge has been present for a long time without being accompanied by other more startling symptoms, seems to give a sense of security, perhaps akin to the contempt bred by familiarity. This attitude is almost universal among the laity, and, unfortunately, all too common among the profession.

It is hard to get patients to continue coming to the office for the local treatments which in many cases will bring about a cure, and the necessary technical skill required in many cases is not at the command of the general practitioner. It is emphatically the duty of the practitioner to impress upon these patients the danger they are running and to see to it that they are made safe.

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*Presented before the Sioux Valley Medical Association, July, 1921.

A glance at the pathology will at once emphasize the nature of the danger and indicate the rational methods to be adopted for a cure. An acute otitis media, either because of insufficient drainage of the tympanic cavity, because of a renewed infection through the tube, or because of a high degree of virulence of the infection, continues to pour out pus after a reasonable length of time has elapsed. This "reasonable length of time" is a relative term, but, in general, it may be stated that an ear that has run a month or six weeks without decided indications of cessation should be considered as the site of a chronic otitis media.

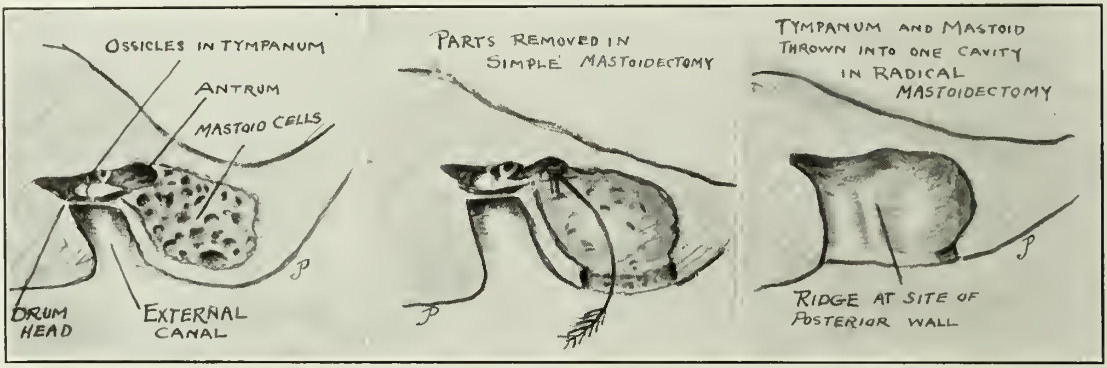

OSSICLES IN TYMPANUM
ANTRUM
MASTOID CELLS
DRUM HEAD
EXTERNAL CANAL
PARTS REMOVED IN SIMPLE MASTOIDECTOMY
TYMPANUM AND MASTOID THROWN INTO ONE CAVITY IN RADICAL MASTOIDECTOMY
RIDGE AT SITE OF POSTERIOR WALL

Fig. 1 Fig. 2 Fig. 3

The mucosa of the tympanic cavity has undergone polypoid degeneration, and granulomata are present. Caries and necrosis of the ossicles and walls of the tympanomastoid cavity may be present. The extent of the necrosis determines the amount of danger present. Infection in this way may readily pass through the eroded walls of the cavity, especially in the roof of the attic, and the cranial cavity becomes infected.

Cholesteatoma, developing with the invasion of skin epithelium through large perforations, may be present. The labyrinth may be invaded, with resulting destruction of hearing, disturbance of equilibrium, and added danger of brain involvement.

Large polyps may act as valves blocking the drainage of the pus and the danger thereby be increased.

The reparative power of the structures within the tympanic cavity is interfered with by reinfections from the throat, where infected adenoids send their germs up through the tube, and from the outside from dust and bathing. There is liable to be a recrudescence of the discharge with fresh colds.

The mastoid antrum is very frequently involved, and in many cases has been acutely inflamed a number of times. That the serious results following mastoiditis do not occur more frequently in these cases is due partly to the free exit for pus afforded by a large perforation and partly to the sclerosis of the bone, which is found so often and which makes a barrier to the progress of the infection.

It is apparent that we have no means of accurately determining the extent of the necrotic process in chronic otitis media. Much may be learned from the character of the discharge, the kind of infection, and from skiagraphs and the symptoms present. However, I wish to emphasize strongly that we cannot tell by any of the diagnostic methods at our disposal whether or not a chronic otitis media may be on the point of extension into the cranial cavity.

It is true that many of the cases "get by" for years with little apparent harm done, aside from the inconvenience of the discharge to themselves, and of its odor to their friends; but the danger is there, nevertheless. It is well known that a chronic discharging ear is a bar to life insurance and was the cause of rejection of many men for military service during the late war. It has been tersely put: "A running ear is a dynamite bomb, which may explode at any time."

The rational treatment of a chronic otitis media involves the clearing up of infection in the nose and throat, especially adenoid masses. The tympanic cavity must be kept clean. Polyps should be removed, and topical applications made. The use of alcohol-boric instillations is useful. Vaccines may be used to advantage. The conservative method of trusting to nature to clean up things that we cannot see is often successful, but always necessitates the taking of a chance, and is possible usually only after a long drawn out course of treatment, requiring considerable skill and which patients who live in smaller communities fail to receive because of the length of time, accessibility, and expense involved.

Fig. 4

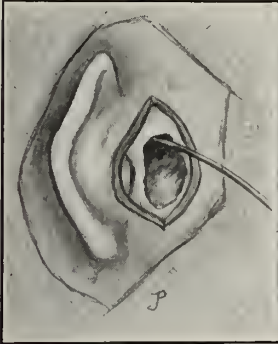


Fig. 4. Simple mastoid operation.

Fig. 5

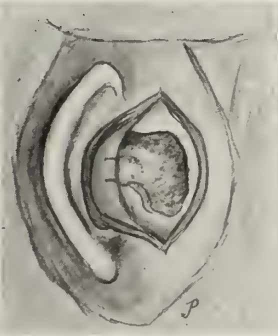


Fig. 5. Radical mastoid operation.

Fig. 6

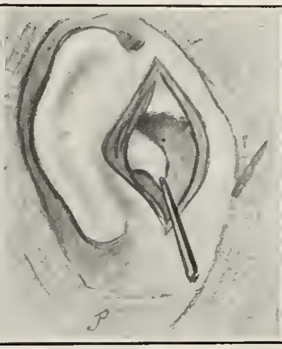
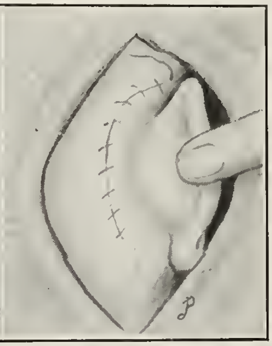


Fig. 6. Flap from posterior wall.

Fig. 7



It is because of the practical impossibility of getting results in so many of these cases that we must turn for safety's sake to a more certain method of treatment. This is the radical mastoid operation. This operation has for its object the complete exposure of the tympanic cavity, made by opening the mastoid bone, removal of the posterior wall of the external auditory meatus and the outer wall of the tympanic attic. With this exposure made and with the parts accessible to direct vision all necrotic and pyogenic tissue is removed, including the tympanic membrane, the malleus and incus. The tube is closed and the whole tympanomastoid cavity dressed so as to cause the entire exposed surface to become lined with skin, continuous with that of the external auditory canal. (See Fig. 1.) When this has been successfully accomplished the patient has been made safe in two ways: first, by the eradication of the infection, and, second, by the protection of the sound bone by a layer of skin and by shutting off reinfection from the throat by closing the tube.

The name *radical mastoid operation* is not especially suitable. In the minds of many it means a thorough mastoid operation, such as every modern otologist does in cases of acute mastoiditis. It should be borne in mind that the operation ordinarily done in acute cases has for its object the removal of diseased bone which is found in the mastoid process as a result of extension of infection from the tympanum, and the drainage of the tympanum, without attacking any of its contents. (See Fig. 2.)

By the radical mastoid operation we mean tympanomastoid exenteration, but the former term, while not accurately descriptive, is the one in common use. (See Fig. 3.)

The radical mastoid operation is indicated in the following conditions:

1. The development, in a case of chronic otitis media, of the symptoms of acute mastoiditis, such as pain, tenderness, and swelling of the mastoid, especially if occurring after a sudden cessation of the discharge.
2. The presence of a fistula leading into the mastoid from behind the auricle or from the external canal.
3. Persistent pain or frequent attacks of dizziness which are associated with chronic discharge.
4. Cholesteatoma.
5. Symptoms of meningitis, brain abscess, or sinus phlebitis.
6. The persistence of a chronic discharge from the ear after careful local treatment has been carried out for two or three months.

THE OPERATION

After a study of the anatomical landmarks and of a properly taken stereo-radiograph the operation is performed as in the simple mastoidectomy up to the point where the antrum is opened. The bone, which is likely to be very sclerotic is carefully chiselled away, taking care to avoid wounding the lateral sinus or entering the cranial cavity. Removing all necrotic tissue as progress is made toward the mastoid antrum, this cavity is opened freely. (See Fig. 4.)

The soft tissues are stripped away from the bony walls of the external canal, and a wedge of bone is removed from the posterior wall from the outside to the tympanomastoid cavity. To avoid the danger of wounding the facial nerve, which runs in its canal just below the wedge to be removed, a director is inserted in the mastoid antrum as a guide. Following up the opening thus made the entire posterior wall is taken off, together with the overhanging outer wall of the tympanic attic. This gives complete exposure of the entire cavity of the tympanum and antrum.

The remnants of the ossicles are removed, and the cavity carefully inspected for carious areas, which are cleared out. It is not an uncommon thing to find necrotic areas directly in contact with dura which has been protected by pachymeningitic adhesions. Such areas may be the site of extension leading to epidural or brain abscesses, which, of course, require drainage. (See Fig. 5.)

However, if such serious complications are not encountered or if there is not a labyrinthitis requiring drainage, the remaining part of the operation consists in preparing the cavity to receive a coat of skin to protect it from future infection.

The whole cavity having been carefully curetted, leaving a base of healthy bone, and the Eustachian tube thoroughly curetted in the effort to cause it to become permanently closed, the cavity is dried and packed with gauze while the soft part of the external canal is prepared. This tube of cartilage lined with skin has been pulled to one side during the deeper part of the operation.

The outer part of the tube, consisting of connective tissue and cartilage, is trimmed away so as to leave the skin. The tube is then cut so as to make skin flaps which may be reflected back into the cavity made in the mastoid. A variety of these flaps have been devised, one of the simplest and most satisfactory being made like the tongue of a shoe. (See Fig. 6.) This tongue is cut from the posterior wall of the tube of skin, and the two incisions which make it are carried well toward the pinna so as to leave a large opening into the cavity, for the purpose of facilitating dressings and making it possible to keep the cavity clean after healing has taken place. The gauze is now removed from the cavity. The skin flap is reflected back against the posterior wall of the cavity.

A skin graft cut from the arm or thigh is applied to the tympanic wall and both graft and flap are held in place by carefully applied gauze. The posterior wound is sutured completely and dressed. After five days the sutures are removed from the posterior wound, which has healed by primary union; the gauze is carefully removed from the cavity, and in a fair proportion of cases the graft will be found to have "taken." Even a small area which has become attached to the bone will be of great service in epidermizing the cavity and materially lessening the time of healing. Some operators apply grafts after the first dressing; others omit them entirely. However, it appeals to me that the use of the primary graft is more than justified by the results which are obtained. (See Fig. 7.)

The after-treatment consists in the application of the dressings through the opening until complete dermatization has occurred. This has varied in my experience from three weeks to three months. There are some cases which, because of exceptional conditions, do not completely dermatize. One of these conditions is failure to get complete closure of the Eustachian tube, which is left as an avenue for reinfection of the tubal region of the cavity. These cases, however, have been made safe against the dangers of intracranial and sinus infection, and as foci they have been eradicated.

It is important that the patients be taught how to keep the cavity clean, and that the wounds be inspected at intervals of a few months to be sure there are no masses of epithelium and dirt collected.

Contrary to the common notion many of these patients have better hearing after operation than before. The sound is carried direct to the footplate of the stapes without passing through the media of the drum-head and ossicles, which in most chronic cases are a hindrance to sound conduction, due to the inflammatory processes with which they are surrounded. This fact removes one of the objections offered against the radical operation, namely, the danger to hearing in persons who have fairly good hearing. It is better to take the chance of having even a little hearing than it is to run the danger incident to carrying around a chronic ear infection. Another objection which is to be met is the danger incident to the operation itself. Granting that the most trifling operation has in it an element of danger and that the radical mastoid operation is not a trifling affair, it is still contended that in the hands of a skillful operator the danger is so much less than the danger of carrying around the infection or the necessarily blind method of conservative local treatment that there is much in favor of the greater safety of the radical operation.

The radical mastoid operation, when indicated and when properly performed, is a conservative procedure.

SINUS INFECTIONS AND THEIR PROPER TREATMENT*

By Lorenzo N. Grosvenor, M. D., F. A. C. S.

HURON, SOUTH DAKOTA

All of the sinuses are lined with mucous membranes, surfaced with ciliated epithelium and goblet cells. These secrete mucus which is evaporated and drawn out by means of the waving cilia, by ventilation and by drainage through the normal outlets of the sinuses. The passage of the inspiratory air current through the nose is up over the inferior turbinate, passing through the middle and superior meati.

When there are obstructions to the passing of the ventilating air current and the outlets are blockaded, the mucus and the lining cells in the sinuses decompose and form the finest kind of nutriment, in a warm moist incubator, for all sorts of bacteria and consequent inflammation. It behooves the nasal surgeon, then, to exhaust every possible means of diagnosis in examination of each case, to find out the exact condition, and apply the proper treatment.

Are there large or diseased tonsils and adenoids? If so, these should be first removed.

Are there obstructions in nares, deflected septum, enlarged turbinates, or other deformities? The septum should next be straightened; then the turbinates.

Are there polyps, mucopurulent secretion, to be seen in meati?

Is there pressure pain over any one of the sinuses?

For the direct inspection you will use the cocaine-adrenal, in swab or spray, to shrink up the tissues; then you can see better. The electric-lighted nasopharyngoscope is needed here to get a definite detailed view. The suction outfit will help determine from just which sinus the discharge comes. Bacterial examination of such secretion is very necessary.

Transillumination will aid in determining which side is most involved. X-ray plates from several positions will be a necessary help.

The discharge coming from under the middle turbinate, comes from frontal, anterior ethmoids, or antrum. If discharge appears above the middle turbinate or posterior choanæ or pharyngeal wall, then it is from the posterior ethmoids or sphenoid.

Pressure pain, too, is most important in determining which sinus is involved. Therefore, I want to urge upon you the necessity of most thorough examination in all your nasal cases. Then you will have the satisfaction that you have overlooked nothing, and the patient is better satisfied and more willing to pay a good reasonable fee.

The antrum of Highmore is the sinus most often diseased. Pressure pain is elicited in the canine fossa—excruciating pain. Pus appears beneath the middle turbinate at intervals. Transillumination shows this side darker than the other. The *x*-ray also proves this, but to know definitely, use the trocar and the cannula, going up under the inferior turbinate, back 1 to 1½ inches, far enough so as to get into the antrum. You can safely use a warm, sterile normal salt solution to irrigate the antrum and flush out any purulent contents. Never blow air into the antrum, for you will surely get into serious trouble, —collapse and death. Many such cases, too many, are reported. Do not do it. Make bacterial examination of secretions, not only from this sinus, but in handling other sinuses. If there are streptococci you will have to "look alive." As they are virulent and rapid, you will have to do radical work. If irrigations do not clear up antrum trouble, then enlarge the opening below the inferior turbinate, forward, back, and down. Use the nasopharyngoscope for better inspection of the conditions within the sinus. Dr. H. L. Baum, of Denver, has just reported perfecting a new electric-lighted instrument to open the antrum through the canine fossa for endoscopic inspection.

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*Presented at the first group meeting of the members of the American College of Surgeons in Iowa, Nebraska, and South Dakota at Lincoln, Nebraska. February 6 and 7, 1922.

Shall we open the antrum through the canine fossa? In doing this, the nerve and blood supply of several teeth is destroyed; then the patient ever after will complain of "elongated teeth;" and you as surgeon will worry much, possibly, as to how to close up the opening into the antrum made through the canine fossa. This may take months or years and operative work.

The frontal sinus has ample outlet at the most dependable part, down into the infundibulum, under the anterior middle turbinate. There will be excruciating headaches over the frontal sinus and throbbing pain at the vertex, which will be worse with the patient lying down. There will be swelling and redness over the frontal region, edema in the eyelids, and pressure pain over the inner eyebrow and floor of the sinus. Transillumination and the *x*-ray are most useful here. If treatments with cocaine-adrenalin every few hours do not relieve the obstructions, then remove the anterior middle turbinate, to clear the outlet. This treatment clears up most cases. After careful nerve-blocking, clear out and enlarge the frontal canal with a rasp. Be sure that you have complete nerve-blocking, or it will be exceedingly painful to the patient.

When eye symptoms intervene or you find streptococci, and all milder means have failed to relieve persistent discharge and pain, then plan to do the Kilian radical operation. This means you must do most thorough exenteration of the crevices, and enlarge the drainage canal to the nose.

The anterior ethmoids also drain down under the middle turbinate. The patient complains of severe pain at the root of the nose, and pressure pain in the inner canthus. The middle turbinate is greatly swollen and covered with pus; and there are many polyps. Use cocaine-adrenalin to shrink up the tissues, and then the nasopharyngoscope to see the detailed conditions. The *x*-rays are indispensable. Then remove all obstructions to ventilation and drainage,—the polyps, the middle turbinate and the anterior ethmoids,—following Mosher or Yankauer's suggestions. When working in the nose it is necessary that you see every move you make. When the parts are hidden by blood, etc., then use douche of cold (ice cold) normal salt solution to irrigate the interior nose. This stops bleeding and clears out all detritus, and then you can work better. These ethmoid troubles may be the cause of many visual lesions, chiefly, contraction of fields; hence, a careful charting and study of fields of vision, is most important.

Of diseases of the posterior sinuses I am not going to speak.

In working out these nasal sinus operations, be sure to apply proper means of nerve-blocking, for you must not hurt the patient. Study Brown's book and do it rightly; great satisfaction to you, as well as to the patient, will result.

Do not blow air into the antrum.

Having opened up a sinus freely, giving good ventilation and drainage, stop there. Do not exenterate lining mucous membranes. They may be diseased, but give them a chance. Good ventilation and drainage will do wonders and will be a great deal better than months and years of healing up with scar tissue that will not functionate.

First, remove the tonsils and adenoids; then straighten the septum, then the middle turbinate, and remember cold-water irrigation.

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AN ANALYSIS OF MINNEAPOLIS CLINIC WEEK

Considering the financial difficulties and perilous times under which most medical men have been laboring for the last year, the attendance at Minneapolis Clinic Week was extremely gratifying. The actual registration by outside men, that is, outside of Minneapolis and St. Paul, was 248, and, together with the men from Minneapolis, who not only attended the clinics but the afternoon meetings, as well, the registration was practically 350, although the press estimated the number from four hundred to five hundred.

Another very gratifying evidence of the success of the Clinic was the numerous clippings which came from the country papers, as well as from the local papers; and these clippings were practically all either notices of the Clinic or commendations of the Clinic, and they also contained the names of the men from the local centers, as well as some of the Clinics which they attended. The local press was exceedingly gratified by the publicity which was given to them by the Executive Committee that had Clinic Week in charge. The following editorial from the Daily News, of Minneapolis, will give a clearer idea than we have ever had expressed for us before:

> Visiting physicians have doubtless profited much by the clinics held in Minneapolis this week, but the public has profited more. Through the co-operation of the M. D.'s it has been possible for the newspapers to publish fairly intelligible, non-technical reports of the matters described and discussed in the gathering. The public may not have been particularly interested in the details of methods by which certain results are attained, but the fact that such results are attainable has been big news. Medicine and surgery have made tremendous strides in the last decade, and it is important that the public be advised regarding this progress. The incurable affliction of yesterday may be curable to-day; just as soon as a new means of relief is demonstrated as efficient, the widest publicity is the humane thing, for it may give a new chance of health to those who have given up hope under former conditions. The practicable treatment is useless so long as those who need it don't know about it.

Very naturally, under the circumstances, and with the publicity given, there were a few disgruntled members of the Clinical Section,—some who were, perhaps, not noticed often enough, some who were not mentioned at all, and some who were mentioned entirely too often. On the whole, the newspapers of Minneapolis were exceedingly generous and attempted, as far as was possible, to get accurate information from the medical man's point of view and expressed it in language that was clarifying. Those who really objected were men who, perhaps fundamentally or ethically, had an idea that the doctor should not receive publicity or that the substance of the clinics should not be given out. This was a sort of passing epileptic fit on the part of the objector, a sort of *petit mal*, as it were, for, as a matter of fact, most of these men have had their names in the papers and really did not throw the fit expected of them when such prominence was given them in the daily press.

Then, too, several men in public expressed themselves as being gratified that the local men were telling what they were doing and what was being done in Minneapolis; so that, on the whole, the Executive Committee feel they did the right thing in giving what information was essential. This means only the beginning of a campaign of publicity, which will be carried on under the offices of the local medical society.

The commendatory comments heard from the men in the country were that the Clinic was better in every way than in any past year. They felt that the attendance was not too large, and they thus had better opportunities of seeing and getting into closer touch with the clinician than ever before. It is true that a part of the attendance was due to the fact that the American Congress on Internal Medicine met in Minneapolis on the Friday and Saturday preceding Minneapolis Clinic Week, that is, there were men who stayed over either to investigate the Clinic, as to how it was managed, or who were interested, clinically, in other branches of medicine. From what the analyst can learn, the clinics covered practically the entire field of medicine, from its anatomical to its pathological phase, including bedside instruction.

The afternoon meetings were extremely well attended. The program was so arranged that these meetings were of special interest, and for this the Committee on Program, consisting of Dr. J. P. Schneider, Dr. J. B. Lewis, and Dr. Archa Wilcox, should receive the thanks of the Clinical Section.

If Minneapolis has established the reputation of having good clinics and is to continue them every year, it will be necessary to keep up the same vigor, activity, and interest that were manifested this year. There doubtless will be many changes made before the Clinic of next year is organized; and perhaps there will be a difference in the management of the clinics in particular.

The Hennepin County Medical Society's annual banquet, which was held on Tuesday night, was very much better than in any previous year. In the first place the dinner was better, and in the next place the entertainment which followed was of a much higher order and of a better class, all jazz and queer things being left out. The speaker of the evening, Dr. Jabez N. Jackson, delivered a very interesting address on "Acute Suppurative Retrocecal Appendicitis." He spoke without notes and seemed to have his subject well before him and in perfect sequence. Outside of his being a very entertaining talker and a speaker of note, there was no evidence of "Jackson's Membrane" presented during his address. Then, too, he is known as a royal good fellow in Kansas City, and his popularity has been emphasized over the Northwest by his address.

The other evening banquets, at which the subjects were pediatrics and ophthalmology, were well attended, and said to be of extreme interest, showing the activity of these special associations and the particular interest which they held out for the visiting physician.

"SPEAKING OF OPERATIONS"

There has been much criticism among the lay people as to the frequency with which surgeons suggest and advise operations. Doubtless some of the criticisms are just and true. But this criticism can be carried too far, and the people are now in a state of mind where they hesitate, sometimes to their great sorrow, before either a physician or a surgeon is called in, and a number of people have died lately because an operation was too long delayed,—we think mainly on the theory that the patient, or the family perhaps, feels that a pain of an indefinite sort, particularly when located within the abdominal cavity, may be relieved by a cathartic or a hot-water bottle or some other domestic remedy. Yet it is hard to criticize one who delays the investigation of a symptom which, to the physician or surgeon, is of the greatest importance. Of course, the lay people are not supposed to consider the generally lowered resistance of individuals owing to war times, financial difficulties, general indifference, and the fear and anxiety that if they call in a physician or surgeon an operation will be urged at once. This is a mistaken policy on the part of a layman, because he might better spend a few dollars in ascertaining whether his pain is of serious import or is a passing pain of no importance rather than take a chance, wait too many hours or days, and find that a recovery is impossible, owing to the long delay. It is these acute conditions which demand the most serious attention. The old chronic cases that have gone on for weeks, months, and years are really not so important. They can be delayed. But an acute state, which may reach its height in one or two hours if not operated on, commonly means death, mainly due to the failure of the individual to keep up his courage, to be optimistic, hopeful, and to show that his resisting power is still with him.

This is not an effort on the part of the editor to suggest anything unnecessarily to the lay mind or to the over-ambitious operator, but it is an effort to call attention to the fact that sometimes serious results come from seemingly minor causes. One case will perhaps illustrate the necessity for prompt action: A child of ten awoke at four o'clock in the morning with pain in the right side. The family, knowing something of the needs of aid and not willing to take any needless chances, called in a pediatrist who arrived within an hour, made a diagnosis of acute appendicitis, called a surgeon, and the child was operated on within two hours from the first onset of the symptom and thereby a life was saved, quite in contrast to the man who complains of a pain, treats it indifferently, waits one or two days until the destructive nature of his disorder becomes apparent, submits to an operation and takes his chances, which prove to be bad.

There is another side to the question, too, and that is the prevailing epidemic and its influence on mucous membranes. Perhaps it is on account of the virulence of an infection to some individuals that these unfortunate mishaps occur. And it shows that even in the midst of seemingly unfavorable conditions, patients must be operated on even though the cause of the disease or the precipitation of the infection results in an acute pathology that demands immediate attention. Usually during an epidemic of influenza the surgeons who invade the different parts of the body hesitate a little during an acute infective period, and justly so; but there are, occasionally, cases where this hesitation should be put aside for the safety of the individual.

SHALL DOCTORS BECOME PRAGMATISTS?

The real meaning of the word "pragmatist" is given as "a busybody, an adherent of pragmatism," while, if you look under the definition of pragmatism, you find the word defined as "pragmatic quality or state; officiousness; dogmatism; also, practicality." The second definition under this heading is "the doctrine that the whole meaning of a conception lies in its practical consequences, and that the purpose of thinking is to develop beliefs which shall serve as general principles of conduct." So that, eliminating all such definitions as pertain to the busy, officious, meddling, opinionated, or dogmatic state of mind, we come to one which deals with the practical values or consequences. Our effort to discuss pragmatism was prompted by an article which was printed in the *London Lancet*, in which it is stated that medical men are adopting the pragmatical standpoint, and the editor of this journal sounds a warning that "science" has boundaries that extend beyond its merely experimental divisions and that a patient's home may yield as accurate information to the student of medicine as the physiological laboratory of a great institute of learning. Consequently, progress in medicine has brought the laboratory into use by enlisting the co-operation of members of the various staffs of work who give instruction at the hospital with which the laboratory is associated; and it is refreshing to know that the clinical society in Manchester will no longer devote its meetings to the discussions of unusual and difficult cases, for which the Lord be praised! So many medical societies bring up isolated cases or problems which prompt the writer of a paper to devote himself to the analysis of conditions or rather states of diseases to a point that one might call misunderstanding of the whole situation, or, at least, he speculates on rather than clarifies the subject on which he is writing. This can be seen in almost any program of almost any medical society. The time is now coming when we shall discuss the demonstration of new methods of laboratory investigation and diagnosis rather than the report of a unique or familial type of disease which is of no value and of no interest, practically, to anyone but the writer; and, if he did but know it, he has a very small audience.

Scientific work means that all pragmatical methods should be brought into use in the investigation of a medical problem, whether it is of the usual or of the extraordinary type of disease. It is very easy to ask questions on subjects which are not very well defined, but it is very difficult to answer such questions unless the whole problem has been sifted down to its simplest proportions.

One must not confuse the thought "scientific" work in medicine with what is commonly known as laboratory work, either, because the science of pragmatism, when one comes right down to it, is the commingling of various methods of investigation with the laboratory findings, and together with the individual and the history that belong to that individual. That includes not only the medical history, but the social and the moral and the spiritual investigation. All this properly comes to the pragmatist, and he uses everything in his power for his analysis and for his scientific diagnosis. He is dealing with events, so as to show their interrelation, and he must always keep in mind that he is not studying a case but an individual.

THE MEDICAL RECORD—GOODBYE

On April 22 the *Medical Record*, the last of independent medical weeklies, ceased publication, and turned its subscribers over to the *New York Medical Journal*, an ably edited and indeed a very vigorous semiweekly medical journal, which recently celebrated its fiftieth anniversary

The *Medical Record* has been published fifty-six years, and all these years has had but two editors, Dr. George F. Shrady, for thirty-six years, and Dr. Thomas L. Stedman, for twenty years.

The *Medical Record* was a great medical journal, and, like some great daily papers of the time, it exerted great influence. It will be missed.

REPORTS OF SOCIETIES

THE MINNEAPOLIS MEETING OF AMERICAN COLLEGE OF PHYSICIANS

After spending two days in Rochester, Minn., those in attendance at Rochester came to Minneapolis in a special train and spent two days here.

The American College of Physicians and the American Congress on Internal Medicine held meetings in Minneapolis April 7 and 8.

At the convocation of the American College of Physicians about 120 physicians from the United States and Canada were admitted to fellowships. Those from Minnesota were Dr. Charles Lyman Greene, Dr. R. I. Rizer, Dr. A. H. Beard, Dr. Hugh Willson, Dr. J. Fowler Avery, and Dr. S. Marx White.

The President of the American College of Physicians, Dr. James M. Anders, was made a Master of the American College.

Addresses were given as follows:

(1) Dr. Leonard M. Murray of the University of Toronto, Toronto, Canada, on "Subacute Bacterial Endocarditis"; (2) Dr. Aldred Scott Warthin, Professor of Pathology and Chief of the Department of Pathology, University of Michigan, on "Excretion of Spirocheta Pallida through the Kidneys" (with lantern slide demonstration); (3) Dr. James M. Anders, President of the American College of Physicians, delivered the annual oration.

Dr. Murray presented a remarkably large series of subacute endocarditis occurring in returned soldiers in Canada. He outlined the history of the disease, laying emphasis on its insidious onset without distinctive symptoms, but with increasing breathlessness on exertion and with moderate anemia. He paid particular attention to the complications, such as embolism in cerebral arteries, peripheral arteries, in liver and spleen, with the accompanying clinical manifestations. Certain peculiar forms of the condition were described and the diagnosis based upon blood culture, and the changing phenomena dependent upon valvular involvement was outlined. One particularly interesting observation was that of rapidly developing mitral stenosis, due to aneurism of the mitral valve invading the valvular orifice, and giving under observation the development of the presystolic murmur typical of mitral stenosis. This rapid development of signs of mitral stenosis could, he stated, occur in no other condition. A remarkable collection of carefully preserved specimens of the condition was exhibited.

Dr. Warthin compared the problem of the excretion of spirocheta pallida through the kidneys with that of the excretion of spirocheta icterohemorrhagica in epidemic jaundice, and by a masterly study of the conditions in some unusual cases of syphilis showed that the spirochete in this condition appeared to be modified and caused to undergo degenerative changes within the epithelium of the kidney tubules. When the spirochetæ had reached the lumen of the tubules they had been rendered unrecognizable as spirochetæ, and he stated that it would appear probable from his material that although in the early stages of the disease the spirochetæ may reach the kidney and be excreted, it is not probable that they can be recognized in the urine. The possible relationship between renal spirochetosis and certain cases of death after salvarsan was considered.

In his Presidential address, Dr. Anders outlined the function of the American College of Physicians as a body having a distinct purpose in the advancement of standards and of research in medicine, and took up the relationship which the College holds to the medical profession in the United States and Canada and to the profession of foreign countries.

The program of daily clinics and demonstrations at the University of Minnesota covered a wide range of subjects in General Medicine, Pharmacology, Pediatrics, Neurology, Actinology, the Borderline between Surgery and Medicine, Dermatology, and the Laboratories. Demonstrations were given also at the Health Department, Minneapolis City Hall; Glen Lake Sanatorium (the Hennepin County Sanatorium for Tuberculosis), and at the Students' Health Service. The visitors uniformly expressed appreciation of the advanced work going on in these fields.

MISCELLANY

MEMORIAL TO CYRUS NORTHROP

By the Executive Board of the Medical School of the University of Minnesota

The passing of Cyrus Northrop, President Emeritus of the University of Minnesota, stirs again the memory of the many years in which his fostering fatherhood, his broad vision, his untiring counsel prepared the way for the progressive development of the Medical School. We remember gratefully how his guiding hand held the helm for us in many a rough passage of those early days; how he ever held our head up into the wind to keep the course that his faith in the future of the School approved. We recall the inspiration which he constantly gave to the University and the School, toward a love of the work for the work's sake, toward high educational ideals, toward the cultivation of a spirit of service—a true University spirit—among us.

His memory,—the memory of the man he was, the work he did,—will be cherished so long as the University of Minnesota,—the monument of his brain his hand had chiefly reared, to the honor of the State and the highest welfare of her citizens,—endures.

BOOK NOTICES

The Spleen and Some of Its Diseases. Being the Bradshaw Lecture of the Royal College of Surgeons of England, 1920. By Sir Berkeley Moynihan. Cloth. Price, $5 net. Pp. 129, with 13 illustrations. Philadelphia: W. B. Saunders Company, 1921.

The author first takes up the anatomy of the spleen with relation to its function. He believes the cellular elements entering into the composition of the spleen pulp, excluding the purely supporting cells, may be grouped in one category—that of modified endothelial cells. These become modified according to the functions they are to perform.

He shows very lucidly the relation of the blood passing from the spleen to that from other organs, to the liver, and he discusses the theories of the mixing of the blood from these several organs.

The spleen as a blood-forming or blood-destroying organ is very thoroughly discussed.

In considering the various functions of the spleen, his discussion of the spleen as a part of the reticulo-endothelial system is perhaps the most thorough and interesting.

Various experiments are cited to show the value of the spleen as an agent to resist systemic infection.

In discussing the pathology of the spleen he takes it up under three groups: (1) The production of a local lesion, such as an abscess, tuberculous nodule, or metastatic new growth; (2) organisms lodging in the pulp without producing a gross lesion, but may produce generalized fibrosis as in malaria; and (3) toxic substances from some focus of infection may produce a subacute inflammatory cell-infiltration of varying extent.

He gives a very concise account of the toxins that enter and leave the spleen and the various changes produced by these toxins.

The various blood diseases associated with splenic pathology are comprehensively discussed. Surgery in relation to these diseases is fully considered, giving statistics and citing experiences of others who have done much along this line.

The very intimate relationship between the spleen and the liver is made very evident by the facts presented here.

Many excellent plates are inserted to show the relation of the spleen to the neighboring organs. In these plates the blood changes in the various diseases are illustrated.

The book is one of the best of its kind to illustrate the many-sided views of the author in his every-day surgical work. It illustrates his practice of considering anatomy, physiology, and pathology in all his surgical discussions.

—J. M. Hayes, M. D.

The Life of Jacob Henle. By Victor Robinson, M. D. Price, $3.00. Pp. 117, with 4 illustrations. New York: Medical Life Company, 1921.

Biographies are among the world's best literature: interesting and instructive. Strange to say, medical literature has produced almost nothing in this field. Garrison, Shastid, and several other writers have given us charming brief historical sketches of medical men, but to Dr. Victor Robinson belongs the credit of producing the first English biography of one of the most versatile and gifted men of modern nineteenth century medicine,—Jacob Henle.

Henle was recognized by the leading scientists and masters of the finer arts throughout Europe. He was talented in music and art, especially in drawing. He hated the Prussian officials, especially Bismarck, and soon left Berlin and later Heidelberg, finally settling in the quaint and peaceful little city of Göttingen. There he worked for thirty-three years. Henle came to love Göttingen. Writing to a friend after refusing another call to Berlin, he says: "Nowhere else in Germany is there the civic freedom and likeness to the English life as here. There is no place more suitable than Göttingen to satisfy my passion to please chiefly myself and give to the world the results of my quiet musings."

Henle was a splendid father, a lover of his home, and possessed to a remarkable degree the happy faculty of making friends.

Beginning with his graduation thesis on the pupillary membrane he produced continuously for fifty years in almost every branch of medicine. Well may it be said of Henle his works "do live" after him. He gave to medicine a system of anatomy the equal of which so far has never been produced. His works on pathology were extensive and valuable. He gave us our first knowledge of the epithelial tissues. He produced an extensive system on the kidneys and left his imprint upon urogenital nomenclature, Henle's Loop being one of his last researches in this line.

Henle produced several splendid researches in the field of biology and comparative anatomy. He made many valuable reviews in medical progress. Early in his career he vainly tried to isolate the germs of smallpox, scarlet fever, and typhoid. In the year of his jubilee, almost at the close of his life, he saw Koch, his former pupil, whom he trained and deeply influenced in his germ theory of contagion, discoverer of the tubercle bacillus. He did not neglect the field of medical biography, giving us several interesting memoirs of Haller, Schwann, and Weber.

The little book has a pleasing style and will prove an inspiration to its reader.

—Laura A. Lane, M. D.

Practical Medicine Series. (Charles L. Mix, General Editor.) Vol. 6. Pharmacology and Therapeutics. Edited by Bernard Fantus, M. S., M. D., Associate Professor of Therapeutics, Rush Medical College, Chicago. 386 pp., Vol. 6, Series 1921. Chicago. Year Book Publishers.

This is volume VI of the eight volumes for 1921 of this series, which has been issued annually for the past twenty years. It follows the general editorial plan of abstracting articles bearing on particular branches of medicine, which have appeared in the current literature during the preceding year. The part dealing with pharmacology and therapeutics suffers from being neither a very comprehensive survey of all the literature of the year on the subject, nor what would be more valuable to the practitioner, concise, authoritative summaries of the more important contributions in therapy for the year.

The editing is not too careful. One notes in a certain instance the syringe and needle to be used for intramuscular injection need not be sterilized, since the fluid to be injected is "sufficiently disinfectant." Under "Quinine" there is no mention of the use of quinine and quinidine in the treatment of auricular fibrillation, though they are found under the subdivision of "Cardiants." Such profusion of therapeutic literature as is set forth here, with so little selection of genuinely useful agents, with accurate description of their effects, cannot but make the practitioner querulous.

On the whole, the section on "Preventive Medicine" is more concise, readable, and of greater informative value. The parts dealing with von Pirquet's "System of Nutrition," and "Infant Mortality and Tuberculosis" are of especial interest.

The makeup is unattractive, the arrangement obscure. the illustrations poor, and the style diffuse. For any physician to whom a medical library is accessible, or one who keeps in touch with the abstract columns of the weekly and monthly journals, annual summaries such as these can be of little service. The place of neither authoritative monographs nor original sources is filled by them.

Harold Rypins, M.D.

NEWS ITEMS

Dr. J. Allaire, of Chicago, has located at Adams.

Dr. C. V. Lynde has moved from Waubun to New London.

Dr. H. J. Gunderson, of Minneapolis, is doing post-graduate work in the Chicago Postgraduate Medical School.

Dr. R. D. Carman, of the Mayo Clinic, has been elected an honorary member of the Röntgen Society of London.

Dr. Henry Takacs did not locate in Marmarth, N. D., as we recently announced, but has now located in Hitterdal, Minn.

The Grand Commandery Knights Templar of South Dakota have issued a beautiful in memoriam letter for the late Dr. F. A. Spafford.

The new addition to St. Mary's Hospital building of Rochester will be formally dedicated on Hospital Day, May 12, with appropriate exercises.

Dr. I. F. Thompson, epidemiologist with the State Board of Health, has accepted a position as deputy commissioner of health of Milwaukee.

Dr. R. L. Latchem, who completed his fellowship in Urology, left the Mayo Foundation recently to locate at 532 Davidson Building, Sioux City, Iowa.

Dr. John De Witt McConnell, a pioneer physician of Dakota, who practiced many years in Fargo, died last month in Pasadena, Calif., at the age of 74.

Dr. E. M. Larson was elected, last month, president of the Great Falls (Montana) Civitan Club, which is composed of professional and business men of that city.

The Minnesota Public Health Association has put into the field an automobile carrying motion-pictures for aid in health talks. Two nurses accompany the outfit.

Dr. M. J. Fiksdal has moved from Webster, S. D., to Appleton, Minn. Dr. Fiksdal is a graduate of the Medical School of the University of Minnesota, class of '09.

The sale of bonds to the amount of $250,000 for building a contagious-disease hospital in Duluth will be delayed owing to a legal contest over the constitutionality of the bonds.

Dr. F. A. Swartwood was elected mayor of Waseca last month, defeating his opponent for the third time. Waseca can find, apparently, only one man to oppose the good doctor.

Dr. Edward Payson Gould, a pioneer physician of Owatonna, died last month in Chattanooga, Tenn., at the age of 72, where he had practiced for the past twenty-two years.

The physicians of Great Falls, Montana, are making elaborate plans for the annual meeting of the Montana State Medical Association, which will be held in Great Falls on July 12 and 13.

The staff of the Public Service Hospital at Fort Harrison, Montana, has received two additional surgeons, Dr. Sherwood Dix, of Baltimore, Md., and Dr. L. A. Walker, of Boston, Mass.

Lt.-Col. C. H. Gardner has been transferred from the Government reconstruction hospital at Aberdeen, S. D., to like work in Pittsburgh, Pa.; and Major J. B. Fralie, of Pittsburgh, comes to St. Paul.

Dr. A. A. Zierold, a former Fellow in surgery in the Mayo Foundation, has established offices at 716 La Salle Building, Minneapolis, Minnesota, for the practice of general surgery and consultation.

Dr. Earl E. Kannady, of Prior Lake, died last month at the age of 37. Dr. Kannady graduated from Northwestern in 1909, and went to Prior Lake soon after graduation. He died of acute miliary tuberculosis.

The annual meeting of the South Dakota State Medical Association will be held in Huron on May 17 and 18. The annual meeting of the North Dakota Association will be held in Jamestown on June 1 and 2.

Dr. L. E. Claydon, of Red Wing, has returned from a winter trip through South America, where he visited most of the medical schools and many of the larger hospitals. Both schools and hospitals are modern and compare favorably with the best in this country.

The women of St. Louis promise to take care of the wives and daughters of doctors who attend the annual meeting of the A. M. A. in that city on May 22 to 26, in a manner that will gratify all such visitors and not one of them will have occasion to regret her visit.

At the annual meeting of the alumni of the Hamline Medical College, Dr. Thomas T. Warham was elected president; Dr. Ivar Sivertsen, vice-president; and Dr. George S. Schmidt, secretary and treasurer. About sixty alumni sat down at the annual banquet.

National Hospital Day will be observed this year on May 12, which is the birthday of Florence Nightingale, and the indications are that the day will be observed more generally than last year. We note that many hospitals in the Northwest have elaborate programs for the occasion.

The U. S. Department of Commerce has just given out the typhoid mortality in the different states for the year 1920. The lowest rate was in Massachusetts and Wisconsin, each showing the same rate, 2.5 per 100,000 population. Minnesota next follows with a slightly increased rate, 3 per 100,000 population. The whole country shows a marked decrease in the past few years.

Dr. R. R. Spencer, of the U. S. Public Health Service, has been assigned to duty in the laboratory at Hamilton, Mont., for investigation into the causes, mode of transmission, and prevention of Rocky Mountain Spotted or "tick" fever, which has prevailed for some time in the Bitter Root Valley of that state.

The Dane County Medical Society of Wisconsin (that is Madison, Wis.) will give a clinic in Madison on May 9. Dr. Frank Smithies, of Chicago, will present a paper on "Diseases of the Gall-Bladder," and a banquet will be given in the evening. The hospitals of the city will give clinics in the morning

The following physicians have recently been elected to membership in the Mayo Foundation Chapter of Sigma Xi, Honorary Scientific Society: Reginald Fitz, Henry F. Helmholz, Norman M. Keith, Frederick A. Willius, J. Arthur Buchanan, W. Calvert Chaney, Linwood D. Keyser, and Albert J. Scholl, Jr.

The American Medical Association of Vienna has issued a circular letter to American medical journals, signed by its secretary and executive committee, complaining of the rank discrimination shown by the medical teachers of Vienna against American physicians in the prices charged for instruction. No American physician should go to Vienna without first writing the American Association.

The fifth annual meeting of Minneapolis Clinic Week drew more attention from the press of the state than any former meeting. If the newspaper clippings on our desk dealing with the Week were pasted end to end—well they might not go around the world, but we are sure they would go around the editor's head several times, thus encircling almost all there is in the medical world. (Not dictated or signed by the editor.)

Among the outside speakers at the next meeting of the Southern Minnesota Medical Association, to be held at Rochester on June 19 and 20, are the following: Dr. W. B. Cannon, Boston, Mass.; Dr. Judson Daland, Philadelphia, Pa.; Dr. Fred H. Albee, New York City, N. Y.; Dr. William P. Coley, New York City, N. Y.; Dr. George E. Shambaugh, Chicago, Ill.; Dr. Willis Campbell, Memphis, Tenn.; Dr. Herman L. Kretschmer, Chicago, Ill.; Dr. Preston H. Hickey, Detroit, Mich.; Dr. Nathaniel G. Alcock, Iowa City, Iowa; Dr. George V. I. Brown, Milwaukee, Wis.; Dr. M. G. Seelig, St. Louis, Mo.; and Dr. George W. Heuer, Cincinnati, Ohio.

The next annual meeting of the Northern Minnesota Medical Association will be in Detroit, Minn., June 5, 6 and 7. No effort has been spared in arranging a program which will be of interest and value. Manifestly it is impossible, in a profession with so many specialties, to build one of equal interest to all, but when one considers the fact that, besides the scientific program, we have Detroit's wonderful hospitality and the possibilities for such recreations as golf, tennis, fishing, motoring, etc., no one can afford to stay away. Some of the best men of the country will be on the program: Drs. Paul B. Magnuson, and Nelson M. Percy, Chicago; Drs. H. M. Helmholz, Rochester; M. S. Henderson, Rochester; O. W. Rowe, Duluth; F. J. Hirschboeck, Duluth; Dean Alfred Owre, Minneapolis; E. K. Huenekens, Minneapolis; F. L. Adair, Minneapolis; E. L. Gardner, Minneapolis; J. F. Corbett, Minneapolis; C. A. Donaldson, Minneapolis; Kenneth Phelps, Minneapolis; Henry L. Ulrich, Minneapolis; C. N. Hensel, St. Paul. Besides many valuable papers there will be interesting clinics.

PRACTICE AND OFFICE EQUIPMENT FOR SALE

The office equipment of Dr. John J. Donovan, deceased, Litchfield, Minnesota; 65 miles from Minneapolis, 3,000 population; fine location; hospital with 30 beds; large medical and surgical practice; established fifteen years. Equipment includes Victor *x*-ray outfit complete. Practice and equipment for the price of the equipment. Address Mrs. John J. Donovan, Litchfield, Minn.

TECHNICIAN WANTS A POSITION

Young lady technician, with three years' experience and excellent training in all branches of routine laboratory work, blood chemistry, tissue technic and routine bacteriology, wants position. Available immediately. Address 238, care of this office.

BOOKS, INSTRUMENTS, ETC., FOR SALE

Medical books, instruments, and an instrument cabinet, operating chair (McDonald), Oliver typewriter, for doctor or druggist, and lots of other things. Write for particulars. Mrs. G. Oppliger, 407 German St., New Ulm, Minn.

PART OF MINNEAPOLIS OFFICE FOR RENT

A physician's consultation room, operating room, laboratory, dark room, joint reception room, Physicians & Surgeons Building, completely equipped, if desired. Leaving city to take government position, Washington, D. C. Inquire of C. J. Eisler, 731 Metropolitan Bank Building, Minneapolis. Very reasonable rent.

LOCATION WANTED

In a German-speaking community preferred. Have had an A-1 schooling and internship, and one year's general practice. Want place with or without property. Married and a Protestant. Address 229, care of this office.

FOR SALE, NORTH DAKOTA UNOPPOSED PRACTICE

An unopposed general practice, established sixteen years; prosperous community; collections over $4,000 cash last year. Inland town, good school, churches and bank. Nearest doctor fifteen miles. Free house rent. County physician and insurance appointments transferable. Will sell at sacrifice office equipment and drugs and thoroughly introduce. Going to specialize. Address 226, care of this office.

UNOPPOSED PRACTICE FOR SALE

In a town of 500 in Southern Minnesota. Collections good; roads good; will sell practice and office equipment for the price of the equipment. Reason for selling, going to specialize. Address 241, care of this office.

LOCATION WANTED

A physician wishes to learn of a good opening within 50 or 60 miles of the Twin Cities. Would prefer a town near a lake, with high school, churches, and lodges. Graduate of the University of Minnesota. Many years' experience in general practice. Ex-service man. Married. Speaks the Scandinavain and German languages. Address 242, care of this office.

WANTED

A Scandinavian dentist or physician to share office in Minneapolis down-town offices reserved for physicians and dentists. Address 236, care of this office.

ASSISTANT PHYSICIAN WANTED

To relieve a Minneapolis physician with offices in the down-town district. Must have a machine and know the city. Address 235, care of this office.

LOCUM TENENCY FOR THE SUMMER WANTED

A young physician, a Johns Hopkins graduate, with experience in general internal medicine, desires position as locum tenens from June to September, to fill in time until a staff appointment in an eastern university hospital begins. Can do general medicine, obstetrics, minor surgery, *x*-ray, and pathological and clinical laboratory work. Address 234, care of this office.

LOCATION WANTED

A physician desires a location in Minnesota or any central state in a rich agricultural or dairy section. Graduate of Class A school; good training; four years' general practice; aged 31 and married; unopposed practice, salaried position, or contract work considered. Address 232, care of this office.

FINE LOCATION FOR A DENTIST

Town of 600 in southeastern part of South Dakota. No competition, rich farming community; right man can make $7,000 a year. Methodist preferred. Address Dr. A. A. Jordan, Hudson, S. D.

MASSAGE AND HYDRIATIC INSTITUTE FOR SALE

An old-established institute of the above character with a large clientele and possessing the entire confidence of the medical profession of Minneapolis, is offered for sale, as the owner desires to retire and locate in California. Located in a physicians' building. Equipment complete. Address 230, care of this office.

UNIVERSAL CYSTOSCOPE FOR SALE

Bransford Lewis Universal cystoscope, five telescopes, direct, right angle and retrospection examining, direct, indirect double catheterizing; large clear view; new condition, case; at a bargain. Dr. A. E. Chase, Northville, S. D.

THE
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SYMPOSIUM ON LYMANHURST (MINNEAPOLIS) OPEN-AIR SCHOOL FOR TUBERCULOUS CHILDREN

By Members of the Consulting Medical Staff of the School:

F. H. Harrington, M.D., LL.D.
J. A. Myers, M.D., Ph.D.
Thomas Ziskin, M.D.
Paul W. Giessler, M.D.
R. G. Allison, M.D., and R. W. Morse, M.D.
Charles Benjamin Wright, M.D.
Carl W. Waldron, M.B. (Tor.), D.D.S.
Chester A. Stewart, M. D., Ph. D., and
O. B. Sheets, M. D.
C. A. McKinlay, M.D.
Richard E. Scammon, Ph.D.
Charles E. Nixon, M.D., Ph.D.
Edward Dyer Anderson, M.D.

[See editorial note.]

LYMANHURST: THE REASON FOR AND THE ESTABLISHMENT OF THE SCHOOL

By F. E. Harrington, M.D., LL.D.
Commissioner of Public Health and Director of School Hygiene
MINNEAPOLIS

Advancement in recent years in the recognition of tuberculosis has emphasized the importance of the recognition of the infection and the activities of the disease in childhood. Ever since the demonstration of the tubercle bacillus by Koch, in 1882, pathological lesions, especially the old so-called "cold abscess," have taken on real significance. The late diagnosis of tuberculosis infection from the standpoint of public health left very little room for preventive medicine. The patient was usually doomed, and the transmission to others successfully accomplished, while the route of invasion of the infection was a matter of conjecture. The development of modern-day science has proven, beyond question of doubt, that the route of entry may be through the gastro-intestinal tract, as well as through the respiratory tract, and Ravenel demonstrated the fact that the tubercle bacillus can invade the human body by passing through the mucous membrane of the intestines without leaving behind any demonstrable lesion. These facts opened up food for thought and field for action.

The Minneapolis Board of Education, through the activities of the Anti-Tuberculosis Committee of the Associated Charities, established an open-air school for the care and education of children who were below normal in weight. These children were referred to as "anemic." Apparently, no definite steps were taken to determine whether or not these children were tuberculous, although of course a large majority of them were.

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*Presented before the Hennepin County Medical Society, Minneapolis, February 6, 1922.

The routine physical records of the school children of Minneapolis and the records of the Sections on Vital Statistics and Tuberculosis in the Division of Public Health forcibly brought to mind the fact that children actually did show marked symptoms of tuberculosis infection, but rarely were they diagnosed and reported because of the absence of positive sputa findings. In more recent investigations the consensus of opinion has adopted the possibilities as facts that children, although previously infected with the tubercle bacillus, became secondarily infected through the respiratory tract as a route of invasion. This secondary infection has been termed *the adult form*. It, therefore, seemed unreasonable that children barely keeping pace with a primary infection as demonstrated by temperature, loss in weight, and retardation in the classes should be exposed to open cases. Although the question was rather new it seemed feasible and advisable to devise some means through which children showing active lesions of tuberculosis could receive treatment as a preventive measure both to their advantage and to public health protection

Leading authorities on tuberculosis state that, approximately, 1 per cent of all children of school age are actively tuberculous. In other words, in Minneapolis somewhere in the neighborhood of 700 children should be easily diagnosed as actively tuberculous, and probably are a menace to the other 99 per cent of Minneapolis school children.

These children properly should be removed from school attendance and taken in time so that by proper care and treatment the disease may be arrested. The importance of this fact is emphasized from the records, which show that during 1920 there were 26 deaths from tuberculosis, and in 1921 there were 22 deaths from tuberculosis, of children of school age in Minneapolis.

How to discover the children actively tuberculous and what to do with them after discovery was the problem: First, to diagnose cases that either cannot or will not visit the family physician or a dispensary, or where the family physician has neither the time nor the facilities for making a definite diagnosis; and, second, to give these children diet, care and treatment as indicated during the regular school hours for the purpose of improving their condition and assisting in the arresting of their disease. To accomplish the first object an out-patient dispensary where *x*-ray facilities might be provided and where the child can be given an examination with the object of discovering tuberculosis, was necessary. To accomplish the second object provisions for the supervision of these children under competent direction and adequate school facilities are required. The application of this scheme was made possible with the completion of Lymanhurst by the Board of Public Welfare, in April, 1921.

This building was designed and constructed as a pediatric hospital in the General Hospital system, but at the time of its completion it was not practicable to open the institution as originally planned. In the meantime more definite study was given to children, as well as to adults, and earlier diagnoses of tuberculosis were being made by the physicians in Minneapolis. The reports on tuberculosis as a result of diagnoses made emphasized the importance of some method of care for children of school age who were definitely tuberculous, and in February, 1921, the Commissioner of Public Health and Director of School Hygiene brought about a joint agreement between the Board of Public Welfare directing the Division of Public Health and the Board of Education directing the Department of Hygiene by which it was possible to open up, in Lymanhurst, a school for the diagnosis, care, treatment, and education of children attending the public schools of Minneapolis who showed active lesions of tuberculosis. This school was opened on May 31, 1921, and has been carried on through the summer, the summer course being a volunteer attendance school.

Under the contagious law and regulations in force no person can attend school in the city of Minneapolis if affected with tuberculosis until a certificate is issued by the Commissioner of Health, certifying to the freedom from danger of the spread of that disease. Under this law definitely diagnosed cases of tuberculosis were excluded from regular school attendance and required to enter Lymanhurst. Children suspected of being tuberculous were referred to Lymanhurst for diagnosis. Only such children as were able to attend school were admitted, and Lymanhurst was carried on as an open-air school.

All necessary equipment to the building was provided by the Board of Public Welfare, excepting actual school property, which was furnished by the Board of Education. A principal and three teachers are now furnished through the Board of Education, and all other personnel by the Board of Public Welfare.

This equipment is the standard hospital equipment with the exception of the sleeping cots, which were donated by the Hennepin County Tuberculosis Association. Well-ventilated class rooms and rest rooms for 180 children are provided. Shower rooms, kitchen and dining rooms, *x*-ray and laboratory, Alpine lamp room, and physical examination rooms, together with offices, store rooms, and wards, provide the children with modern, advanced, recognized methods of caring for this character of patient.

In order properly to study the cases admitted, properly to classify them, and properly to treat the children, a volunteer corps of specialists was interested in the project, and they have associated themselves with me in both phases of my activity in Public Health and School Hygiene. Every facility possible has been made available, and at this writing authority has been given for the augmentation of the work at Lymanhurst by the establishment of a twenty-bed ward for the further observation of children under the care of the physicians supervising this work and an out-patient diagnostic clinic.

Children are admitted to Lymanhurst on the diagnosis of the physician or dispensary reporting to the Division of Public Health, and each child so admitted remains the patient of the physician reporting the case. Children referred by the school physician, nurse, or principal, and giving a family history of tuberculosis and some gross clinical symptoms, are given an examination in the out-patient dispensary at Lymanhurst, where von Pirquet tests are applied and *x*-ray plates made. Children whose conditions indicate the need of hospital or sanatorium care are placed in an observation ward and transferred from the observation ward to Glen Lake or the State Sanatorium. This scheme, as outlined, gives the school children of Minneapolis an opportunity to obtain a careful diagnosis, if for any reason the child cannot or will not visit its family physician; provides the regular Board of Education teaching facilities, as well as diet, rest, and therapeutics during the class periods, as indicated, and institutional care pending transfer to the recognized tuberculosis institutions as required.

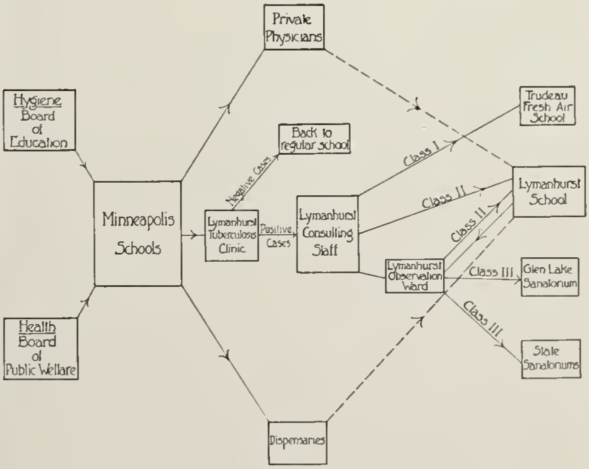
Too much credit cannot be given my associates in this work for their untiring and unceasing devotion to the established routine at Lymanhurst; and of this work more will be heard in detail from the men devoting their time to this philanthropy.

CLASSIFICATION AND TREATMENT OF SUSPECTED TUBERCULOUS SCHOOL CHILDREN IN MINNEAPOLIS

By J. A. Myers, M.D., Ph.D.
Medical Director, Lymanhurst School for Tuberculous Children

MINNEAPOLIS

The Hygiene Department of the Board of Education and the Health Department of the Board of Public Welfare are making strenuous efforts to protect Minneapolis school children against the ravages of tuberculosis. Through school physicians, nurses, and teachers, they select from the school children those suspected of having pulmonary tuberculosis, and they advise such children to have physical examinations. These examinations may be made by private physicians, the Lymanhurst out-patient tuberculosis clinic, or other clinics and dispensaries now operating in the city.



The positive cases reported by private physicians and other dispensaries are excluded from the regular schools and sent to the Lymanhurst School. Patients coming to the Lymanhurst out-patient tuberculosis clinic are divided into two groups. The first group of children, although they may have positive skin reaction, show no lesions and manifest no evidence of disease. The children in the first group are returned to their regular schools. The second group consists of children ranging from those with very slight manifestations of tuberculosis to those with very active and progressive disease. The children in this second group are all sent to the

Lymanhurst consulting staff, where they are studied in detail by physicians representing the following specialties: pediatrics, cardiology, gastro-enterology, orthopedics, stomatology, otolaryngology, ophthalmology, endocrinology, neurology, röntgenology, hematology, anatomy, and bacteriology. Each specialist makes his part of the examination without knowing the findings of the others. At stated intervals the specialists meet and submit their findings, from which a diagnostic chart is made. Those present decide upon the final diagnosis, proceed to classify the cases, and make recommendations as to treatment. In the out-patient department it has been determined that every case coming to the Lymanhurst consulting staff has a tuberculous infection. It then devolves upon the various specialists to determine whether tuberculous disease actually exists. According to the findings, the children are divided into three classes. In the first class are placed the children who not only react positively to the von Pirquet test, but whose general health is not quite up to par. Some are undernourished, some do not manifest the proper play spirit, etc. Inasmuch as these children are infected and below normal, although we can demonstrate no definite tuberculous lesions, they are sent to the Trudeau Fresh Air School.

In Class 2 are placed the children who react positively to the von Pirquet test and have certain manifestations of disease, such as undernourishment, anemia, and reduced physical fitness. In these cases definite tuberculous lesions are demonstrable, but the children manifest no evidence of active progressive disease. These children are retained in the Lymanhurst School.

The Lymanhurst consulting staff finds a group of questionable cases requiring further study before classification is possible. Such cases are placed in the Lymanhurst observation ward for the necessary length of time. If their disease is found to be inactive they are placed in Class 2 and retained in the Lymanhurst School. Those who are found to have active tuberculous processes are sent to the Glen Lake Sanatorium or the State Sanatorium. Occasionally a child in the Lymanhurst School develops symptoms that are suggestive of tuberculous activity. Such cases are immediately sent to the observation ward and, later, returned to the Lymanhurst School, or sent to a sanatorium, depending upon

DIAGNOSTIC CHART

No. 48, Date, October 1, 1921.

Name, Mary Jones; Female; Age 12 yrs.
F. H., Positive; Exposure, 1917.
Onset, Post-influenza, 1918.

Localizing Symptoms
Cough, Yes.
Expectoration, No.
Hemoptysis, No.
Pleurisy, No.
Dyspnea, Slight.

Constitutional Symptoms
Pulse range, 80-96.
Temperature range, 98°-99°.
Lack of endurance, Slight.
Weight: Normal, 75; Actual, 68.
Loss of strength, Slight.
Loss of appetite, No.
Indigestion, No.

Physical Signs
Note, Slightly impaired above 2nd rib on each side.
Breath sounds, Slightly bronchovesicular.
Râles—M. C., No. Fine, No.

Röntgenogram
Parenchymatous, Bilateral, apical.
Peribronchial
Other, Enlarged and calcified bronchial nodes.

Tubercle Bacilli
Previous, No; Present, No.

Tuberculin Tests
von Pirquet ++; Manteau.

Lung Capacity
Observed, 1650; Normal, 1900.

Special Examinations
Nose, Negative.
Mouth, Carious teeth.
Throat, Hypertrophied tonsils and adenoids.
Ears, Negative.
Heart: B. P., 90/70. Pulse, 80, regular. Slight systolic murmur over pulmonary area. Marked cyanosis of hands.
Blood: Hemoglobin, 80 per cent. Erythrocytes, 4,440,000. Leucocytes, 800,000.
Stomach, Intestines: Chemical examination negative, normal stomach, intestines normal.
Nervous, Mental: Slight mental retardation; nystagmoid movement of eyes.
Bones, Joints: Posture, poor; prominent abdomen; flat chest; round shoulders; feet slightly pronated. Slight systolic murmur over pulmonary area.
Endocrine Glands: Basal-metabolism, normal.
Anatomy, Height-Weight index 43.

Diagnosis
Tuberculous infection, Yes.
Clinical tuberculosis, Yes.
Condition: Active, No.; Inactive, Yes.

Classification
Minimal, Yes.

Recommendations
Regular school.
Trudeau School.
Lymanhurst School, Yes.
State Sanatorium.
Glen Lake Sanatorium.
Special: Dental treatment; removal of tonsils and adenoids.

the presence or absence of tuberculous activity.

Very little attention is paid to the absence of tubercle bacilli in the sputa, for it is a well-known fact that approximately two-thirds of the cases of minimal tuberculosis have negative sputa. Therefore, from the standpoint of diagnosis, early tuberculosis will be detected in only about one-third of the cases if one waits for tubercle bacilli to appear in the sputa. Moreover, children have such a tendency to swallow their sputa that the examination of the stools for tubercle bacilli is often more reliable than examination of the sputa. The terms "open" and "closed" cases are fast becoming obsolete. When one considers that an extremely small amount of sputum is examined at one time, and to contain tubercle bacilli this must come from the region of a bronchial ulceration, one is not surprised to find a single positive result following many negatives. Numerous cases have been reported in which as many as fifteen to twenty examinations of sputa revealed no tubercle bacilli, while the next examination showed them to be present in large numbers. This is sufficient evidence to convince one that, if a definite tuberculous lesion can be demonstrated in the lung, the case should not be spoken of as "closed," even if a few examinations of the sputa reveal no tubercle bacilli. One frequently sees so-called "closed" cases develop positive sputa with or following an acute upper respiratory infection. These points are of great importance to those who are attempting to prevent the spread of tuberculosis.

In the Trudeau Fresh Air School the children are placed on special diets, are given regular rest periods, and spend the greater part of their time in the open air.

The children who remain in the Lymanhurst School live at their homes and come to the school at 8:30 each school day. At 8:50 they assemble for diet, which consists of cooked cereal, whole milk, and sugar, with a caloric value of 100. The children pass to their class-rooms, where they remain from 9 to 11. They are then served cocoa with a food value of 100 calories. This is followed by a twenty-minute recess, during which time the playground is carefully supervised, and suitable games are played. The period from 11:20 to 12:30 is spent in the class-room. At 12:30 the children pass to the dining-room, where dinner is served. This consists of easily digested foods with a value of 900 to 1,000 calories. Care is taken that vitamines and the minerals are supplied in sufficient quantities. The teachers and nurses dine with the children and spend considerable time teaching them table etiquette. The rest period is from 1:30 to 2:30 P. M. During this period each child lies upon a comfortable bed, and most of the time is spent in sleep. At 2:30 class work is resumed and at 3:30 food, consisting of dry cereal, milk, and sugar, valued at 100 calories, is served. The children are then permitted to go to their homes.

The rooms are kept well-ventilated in the Lymanhurst School so that each child receives an abundance of fresh air throughout the day. In fact, Eskimo suits have been provided to protect the children from cold while working in the open air in winter time.

Temperatures of the children are taken twice each day, and the weights are recorded each week.

In the school building, shower baths are provided, and the nurses see that each child is given a daily bath in summer and three baths a week in winter.

At stated intervals toothbrush drills are given. The children are taught not only the reasons for, but also the proper technic of, brushing the teeth. Each child is given a toothbrush for home use.

One might criticize the diet of these children in that the total number of calories given at the School is fairly high, but when one takes into consideration the facts that these children are active physically, and many of them may not receive much nourishment at home, there seems to be sufficient justification for this diet. Most of the children make a substantial gain in weight and no untoward results have been observed.

In all this work an attempt is made to improve the general health of the children with the hope of aiding them to heal their lesions and to so educate them in the right way of living that they will be able to avoid a possible relapse or reinfection leading to disease in later life.

We are asked occasionally why each child is examined by so many specialists. One person intimated that it is for the purpose of "experimenting" upon the children. This is far from the truth. We know that most early cases of tuberculosis recover if the greater part of the energy of the body is conserved for fighting the disease. If, for example, a child has pulmonary tuberculosis, and at the same time has carious teeth, and hyperthyroidism, one will meet with considerable difficulty in treating the pulmonary condition unless the teeth and thyroid are restored to normal conditions. It is rare that one has pulmonary tuberculosis without impairment of some other organ of the body; therefore, it is a distinct advantage to a child to have the various organs examined and treated, if necessary, by the proper specialist.

The data compiled by each specialist are of great value to him, and a correlation of all the data compiled by all the specialists in any given case is of tremendous value in guiding the management of that case. Moreover, correlation of such data in large numbers of cases undoubtedly will lead to valuable contributions to our knowledge of tuberculous children.

Each specialist is constantly on call to treat any disorder of the organs in his specialty which may occur in any case. For example, if a child developes an acute gastro-intestinal disorder the gastro-enterologist is called upon to relieve the child of this condition. Another child may receive a sprain while on the play-ground, and the orthopedist is immediately called upon to administer the proper treatment.

The following cases are cited to show the practical, as well as the scientific, value of complete examination by numerous specialists:

1. A boy of 12 years had been treated for pulmonary tuberculosis for many months before his admission to Lymanhurst School. The examination by the consulting staff revealed unquestionable pulmonary tuberculosis, but in making his part of the examination the neurologist detected certain evidence of syphilis. He immediately requested a Wassermann test, which proved to be positive. This patient has since received anti-syphilitic as well as anti-tuberculosis treatment.

2. Our stomatologist has reported that nearly every child in the Lymanhurst School has infections of the mouth or throat. Such infections unquestionably tend to reduce the ability of the children to fight their tuberculous processes; therefore, steps are taken to eradicate the infections of the mouth and throat of each child as soon after admission as possible.

3. A girl of 13 years, who had lost twenty pounds in weight, manifested dyspnea on slight exertion, and was anemic, had been given a positive diagnosis of pulmonary tuberculosis and was sent to the Lymanhurst School. The consulting staff was unable to detect any evidence of tuberculosis, but the cardiologist diagnosed a double mitral lesion, which was the only condition found to account for the symptoms. The patient was discharged from the Lymanhurst School and referred to a cardiac clinic for treatment.

4. A girl of 13 years with bilateral enlargment of the cervical nodes was given a diagnosis of tuberculous cervical adenitis and was sent to the Lymanhurst School for heliotherapy. The hematologists made a careful study of the morphology of the blood and reported that the picture was typical of Hodgkin's disease. They further suggested other examinations for confirmatory evidence. These were made, and the diagnosis of Hodgkin's disease was confirmed.

EDUCATION

The children in the Trudeau and Lymanhurst Schools are given the usual public school instruction. In both the State Sanatorium and the Glen Lake Sanatorium, schools are provided for children who are physically able to pursue school work. Many of the children have diseases which will yield to the special treatment they are receiving, yet some of their bodies will be permanently crippled and deformed; therefore, they will never be able to compete in a physical way with persons who are 100 per cent physically fit. Many of these children have alert minds, and, if they are given the advantages of a special school, they will be so trained mentally while recovering from disease that they will become self-supporting and useful American citizens, whereas without the advantages of such special schools many of them would develop into illiterate, helpless individuals, wholly dependent upon the public. It is indeed costly to provide, equip, and maintain special schools for tuberculous children, but it is infinitely more costly to the individual and to the public at large to fail to provide for them.

There is no more important phase of the work than the educational phase with particular reference to the control and prevention of tuberculosis. It has been truthfully said that the time to educate an individual in a given subject is when that individual is personally interested in that subject. It follows, therefore, that the time to educate individuals and families regarding tuberculosis is when the individual or some member of the family becomes afflicted with the disease. The physicians, nurses, teachers, and other interested individuals are losing no opportunity to teach the children, their families, and friends regarding the control and prevention of tuberculosis. Short talks to the children and their parents on the lives and accomplishments of great men who have fought and won, such as Dr. E. L. Trudeau, serve to stimulate and encourage them.

The Lymanhurst School has already become a member of the National Tuberculosis Association and is receiving the official publications of that organization. A splendid library is being added, which consists of excellent books on tuberculosis written by individuals of national and international reputations. In this manner all persons engaged in the work are able to receive and apply the latest and most authoritative information as regards the progress of the fight against tuberculosis.

HELIOTHERAPY

Rollier has proved that heliotheraphy is of distinct value in treating tuberculous children in the Alps mountains. Work carried out in this country has shown that a high altitude is not absolutely essential to obtain good results from heliotherapy. Moreover, good results may be obtained in the absence of natural sunlight by the use of artificial sun lamps. Heliotherapy is indicated in many of the children in the Lymanhurst School. In this climate one cannot depend upon natural sun during the winter months; therefore, Alpine sun lamps have been installed for the treatment of children in the Lymanhurst School. These lamps are so located as to flood one room with artificial sunlight. In this way several children can be exposed at the same time. The entire body is exposed to the rays for periods beginning with one minute and gradually increasing to one or even one and one-half hours per day. The length of the time may be considerably decreased by bringing the lamps nearer the surface of the body. The lamp treatment serves four purposes, as follows: (1) a period of rest and quiet for the patient; (2) possible chemical effects of the rays; (3) an air bath, which is of recognized value in the treatment of tuberculosis; (4) the psychic effect, which must be taken into consideration, especially in the treatment of the older children.

Any child who begins showing toxic manifestations is placed in the observation ward for a careful study to determine whether the tuberculous lesion is becoming active. If the observation reveals a lighting up of the tuberculous process the child is sent to the Glen Lake Sanatorium or the State Sanatorium.

All children sent to sanatoria are placed on the usual antituberculosis regimen and remain in these institutions until their physicians see fit to discharge them.

It is true that children between the ages of six years and the period of puberty show a remarkable tendency toward recovery. It must never be forgotten, however, that recovery is not always complete, but that the disease may remain in a partially healed stage for years, and when puberty or a later age is reached it may again become active and cause the decline or even death of the patient. It has recently been proved, quite conclusively in an experimental way, that small tuberculous lesions may completely heal, leaving little or no trace of their existence. It has been shown, further, that an individual who has a healed lesion may be reinfected at a later time in life.

It may be said that the reports made by the Lymanhurst staff do not show the children to be very ill at the present time. This is true, but they have demonstrable tuberculous lesions. The situation can be no better expressed than in the following quotations by Much: "It is important to consider the ultimate, not the present, moment, and then we shall be able to save many valuable lives. And only from this logically true viewpoint and position follows the correct attitude toward the treatment."

The main objects of the work among tuberculous school children in Minneapolis may be summarized as follows:

1. To diagnose the disease in its earliest stage.
2. To withdraw from the regular public schools all children who may be a menace to the health of others.
3. To build up the child's general health in an attempt to prevent a possible breakdown in later life.
4. To educate the children and their families, as well as the public, regarding the control, curability, and prevention of tuberculosis.
5. To give the tuberculous children such schooling as will enable them to develop into useful American citizens.
6. To endeavor to make scientific contributions which will aid not only in the local fight against tuberculosis, but also will help hasten the day when tuberculosis will be eradicated from the human family.

CARDIAC SIGNS IN EARLY PULMONARY TUBERCULOSIS IN CHILDREN

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MINNEAPOLIS

The importance of the early recognition of the signs and symptoms of pulmonary tuberculosis in children, and their subsequent observation and management cannot be emphasized too strongly. The thorough physical examination of the child, together with the recognition of signs and symptoms in other organs which may facilitate our diagnosis of a pulmonary condition, is, therefore, of the greatest importance. With this idea in mind, a routine study of the hearts of the children at Lymanhurst School was made for the purpose of ascertaining whether, by group studies of this sort, certain signs in the cardiovascular system could be elicited which would help us in making our diagnosis of tuberculosis. I hope the presentation of this report will, in a small measure, justify the time and effort expended in this investigation. I wish to express, at this time, my appreciation to the other members of the staff and the many others, who of necessity must be unnamed, whose co-operation and assistance made this work possible.

The method of procedure consisted of a routine physical examination of the patient in the recumbent and standing positions, a blood-pressure study in both positions, a Röntgen-ray study both by stereoscopic plates and fluoroscopic examination, an electrocardiographic study, and a study of the exercise tolerance.

Incidence.—Out of ninety children examined, only two showed definite evidence of both tuberculosis and valvular heart disease. Two more showed evidence of valvular heart disease, together with a positive von Pirquet, but no other sign of tuberculosis. Two others showed signs of valvular disease without any tuberculous infection. Halsey,[1] in a study of 44,000 school children in New York City, found only 0.89 per cent to have signs of heart disease and only slightly more than 0.5 per cent to have organic disease. Kellner,[2] in a study of 14,000 cases of tuberculosis in adults, comments on the rarity of valvular defects with pulmonary tuberculosis, his statistics showing the presence of heart disease in only 0.5 per cent of all the cases. While the present group is entirely too small upon which to base any definite conclusions, yet the findings indicate that the incidence of heart disease in tuberculous children is approximately the same as in other children, for the reason that tuberculous infection, the focal infections, and the exanthemata occur at about the same period in childhood, while in adults it is less because the presence of a valvular lesion tends to hinder the development of the adult type of pulmonary tuberculosis.

Size and shape.—The size and shape of the heart were studied by means of percussion, stereoscopic Röntgen plates, and the fluoroscope, and, though no definite measurements were made from the plates, for comparison with the normal, yet my observations and those of the röntgenologists show that the hearts were all normal in size, shape, and position, excepting those which showed definite cardiac involvement.

Tones and murmurs.—The heart tones, in all cases excepting those in which murmurs were heard, were of normal intensity and character at the apex. At the base, the pulmonic second tone was found to be accentuated more than normally in 39 per cent of the cases. In 61 per cent of the cases, a rough blowing systolic murmur, varying in intensity and in length, was heard at the pulmonic area and in some cases transmitted over the precordium. This murmur is due to the pressure caused by the enlarged bronchial glands coming in contact with the great vessels. It was present in 81 per cent of the cases showing bronchial gland involvement by *x*-ray, and in only 21 per cent of the cases showing no bronchial gland involvement by *x*-ray. The importance of this murmur as a sign of bronchial gland tuberculosis can readily be seen, and since Opie and Anderson[3] in their autopsy studies, and Allison and Morse[4] in their *x*-ray investigations, and others have shown that tuberculous infections are probably primary in the lungs and secondary in the lymph nodes, the value of this sign as an aid in the diagnosis of pulmonary tuberculosis in children cannot be overestimated. It is of greater value than D'Espine's sign, which was present in only 70 per cent of the cases showing bronchial gland involvement by *x*-ray, and in 53 per cent of the cases showing no gland involvement by *x*-ray. O'Brien and Ames,[5] in their investigation, elicited D'Espine's sign in only 40 per cent of their cases showing *x*-ray evidence of glandular involvement.

Blood pressure.—In the study of the blood-pressure findings, the method of Kilgore,[6] using the statistical method of frequency distribution, was adopted and compared with the results obtained by Faber and James[7] in their study of the blood-pressures in normal children. Faber and James have shown that if we take a large series of normal children, we will find that the majority show pressures at or near the average for the entire group, and that as the level of the pressure becomes more distant from the average, a smaller number of cases occur. They deduce clinically from their results, that the nearer the pressure is to the average of all normal individuals, the greater are the chances the pressure of the individual is normal; and, conversely, the greater his deviation from the average, the greater the chances that his pressure is abnormal and the smaller the chances that his pressure is normal. The proportions and chances are determined by the use of a measure of deviation from the mean, or average, which is known as the "standard deviation" of Pearson. By dividing the deviation of a given measurement from the average by the standard deviation, they obtain a quotient which they have called the "deviation index." In order to obtain this index, only the corresponding average for the normal and the standard deviation must be known. Thus, if a patient, aged 12, has a systolic pressure of 127, we look in the tables for the normal, and we find the pressure is 106 and the standard deviation is 7; then, $127-106=21$; $21 \div 7=3$, the deviation index.

The normal indices of deviation were found to be between +3 and —3. The chances, therefore, are greater that in this case the pressure is abnormal than that it is normal. Adapting this method to our present study, we obtain the following results:

TABLE 1

Showing comparative indices of deviation

Deviation Index	Normal Index ±	T. B. Index +	T. B. Index —	T. B. Index ±
0	50%	....	....	8%
0 to ± 1	34%	35%	25%	60%
± 1 to ± 2	13%	18%	7%	25%
± 2 to ± 3	3%	5%	2%	7%

These results show that all the blood-pressure readings were within the normal range, yet the majority tend to be within the upper limits of normal. A greater percentage showed a tendency towards an increase of blood-pressure than towards a decrease.

Pulse.—The pulse showed an increase in rate in the majority of the children. The detailed results are given in Table 2, below.

Crampton index.—Crampton[8] has studied the gravity resisting functions of the circulation as an estimate of its efficiency and has worked out a scale of normal values. The scale is computed from the increase or decrease of blood pressure and pulse upon changing from the horizontal to the vertical position. He has shown that certain diseased conditions are associated with indices that are higher or lower than others. While he does not claim that this test is of absolute diagnostic value, yet he believes it is an aid in the diagnosis of certain conditions. The Crampton index was observed in the present group and found to be normal in practically every case.

Exercise tolerance.—The study of the exercise tolerance as a test for cardiac function in adults has been generally adopted and the normal standards definitely established. Wilson[9] has recently investigated the circulatory reactions to graduated exercises in children and has established the normal standards for children. She found that children react the same as adults, also that the pulse does not give us much information as to the exercise tolerance of the child. The standard test exercise consisted in swinging 2, 3, or 5 lb. dumb-bells, respectively, according to the age of the child, about twenty times. The clinical symptoms after exercise were a slight dyspnea, fatigue, and flushing of the face. The systolic blood-pressure showed a rise of between 20 and 30 mm. after exercise, and returned to normal within two or three minutes. In the present group practically all the children showed a normal response to the exercise test. My observations also confirm the findings of Wilson, that the pulse does not give us much information in the test.

Electrocardiographic findings.—In the study of the electrocardiographic tracings, Seham's[10] values for normal children were used for comparison. The results show—

The rate is faster than in normal children.

TABLE 2

Showing comparative pulse rates

Age	6	7	8	9	10	11	12	13	14	15	16
Normal rate	93	93	89	89	89	89	88	87	86	85	85
T. B. rate	84	84	100	93	96	86	84	93	96	96	96
Normal by Electrocardiograph	98.6	94.2	88.5	...	89.3	98.2	...	98	...	...	...
T. B rate by Electrocardiograph	...	110	103	113	104	110	108	102	107	104	100

The P-R interval is slightly greater.

The height of the R wave is greater in all leads and proportionately more so in lead III.

The depth of the S wave is slightly greater in all leads.

The R width is the same.

The Q R S T interval is less.

The T wave is inverted in lead III in about the same proportions of cases as in the normal.

These findings indicate a slight delay in auricular condition.

The height of the R waves and depth of the S waves are probably greater because of the increased rate.

SUMMARY

1. A study was made of the cardiac signs in a group of tuberculous children.

2. The incidence of heart disease in tuberculous children is about the same as in non-tuberculous children.

3. The size, shape, and position of the heart are not affected by early tuberculosis in children.

4. The pulmonic second sound is accentuated more than normally in 39 per cent of the cases.

5. The presence of a rough systolic murmur at the base of the heart indicates a bronchial gland tuberculosis in 81 per cent of the cases.

6. This sign is more reliable than D'Espine's sign.

7. The blood-pressure was found to be higher than the average normal in 58 per cent of the children and lower than the average normal in 34 per cent.

8. The pulse showed a tendency to be more rapid than normal.

9. The functional capacity of the heart, as measured by the exercise tolerance, was found to be normal.

10. The electrocardiograms showed a delay in auricular conduction and an increase in the height of the R and depth of the S waves in all leads.

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ORTHOPEDICS IN TUBERCULOUS CHILDREN

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In an examination of 50 tuberculous children at Lymanhurst the following orthopedic conditions were discovered: 1 tuberculous hip; 4 tuberculous spines; 1 tuberculous elbow; 1 old osteomyelitis of the foot, probably tuberculous; 2 genuvalgum; 1 hallux valgus; 15 scolioses; 1 lordosis; 12 poor postures; 34 pronated feet.

Out of the 50 cases 7 had tuberculous bone involvement. The tuberculous hip was healed with firm ankylosis in marked adduction and flexion deformity with an apparent shortening of six inches. Of the 4 tuberculous spines, 3 were in the dorsal region and 1 in the lumbar; 3 had kyphoses. The tuberculous elbow was healed with firm ankylosis in good position. The osteomyelitic foot was healed with considerable limitation of motion and pronation deformity.

There were 15 scolioses, of which 13 were functional and 2 structural; 13 simple and 2 compound. The predominating curve was left dorsal, of which there were 9. The rest were divided as follows: 1 right dorsal; 1 right dorsolumbar; 2 left dorsolumbars; 1 left dorsal right lumbar; 1 left cervical right dorsal. The latter is a rare condition, being high on the spine; this was one of the structural cases.

These fifteen cases constitute 30 per cent of the cases examined,—an unusually high percentage.

Ten of the scolioses showed lung capacities as follows: 4 above normal, 2 less than normal, and 4 normal.

Two of the 15 scolioses had good feet, 9 showed pronation of the first degree, and 4 of the second degree. The one case of lordosis was compensatory in the case of the marked flexion of the ankylosed hip.

As to posture: 15 of the 50 had a good posture, 23 a fair posture, and 12 a poor posture. Of the 15 good postures, 5 showed a lung capacity above normal; of the 23 fair postures 5 had a lung capacity above normal, while in the 12 poor postures, none showed a lung capacity above normal.

Among the 15 good postures there were found 12 other orthopedic conditions; among the 23 fair postures there were found 12 other orthopedic conditions, while among the 12 poor postures there were 20 other orthopedic conditions.

Only 2 of the 50 cases gave a history of subjective foot symptoms, but examination showed only 16 pairs of good feet. Twenty-six showed pronation of the first degree, 6 of the second degree, and 2 of the third degree. Taking only the 8 cases with pronation of second and third degree, these constitute 16 per cent of the 50 cases. All of these 8 had some other orthopedic condition.

While the number of cases examined is small from which to draw very definite conclusions, it appears from the figures given that these tuberculous children are considerably below par in respects other than tuberculous. The muscle tone is diminished, and their powers of activity decreased, as evidenced by the posture, scoliosis, and foot findings. The number of tuberculous bone conditions gives some idea of the approximate percentage of orthopedic tuberculosis found in children who have this tuberculous tendency.

THE RÖNTGEN DIAGNOSIS OF PULMONARY TUBERCULOSIS IN CHILDHOOD

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In venturing to present to you the subject of "The Röntgen diagnosis of pulmonary tuberculosis in childhood," we are well aware of the widely divergent opinions which exist among both clinicians and röntgenologists as to just what conditions must be fulfilled before a diagnosis of pulmonary tuberculosis in childhood is warranted. Not many months ago we heard Dr. Baetjer remark feelingly that his conception of heaven was a place where a man could practice röntgenology and not have to give opinions on children's chests and fifth lumbar vertebræ. We are quite sure that all of us agree with him most heartily in this sentiment, but, unfortunately, we are being constantly asked for opinions, and it seemed to me that it would not be amiss to review, briefly, some of the accepted theories of the mode of primary infection in tuberculosis of the lung in children, and then, with these pathological findings as a basis, attempt to follow infection, healing, reinfection, and spreading of the disease on the Röntgen plate.

While both röntgenologists and clinicians have long recognized the fact that a vast difference existed between childhood and adult tuberculosis, there has existed, and still exists, great uncertainty as to what constitutes childhood tuberculosis, and what relation it bears to the adult type.

Kuss and, later, Albrecht were the first to show that the primary infection in tuberculosis was, in the vast majority of cases, by the lung route, and that the changes in the lymph nodes, bronchial, and tracheobronchial glands are secondary to the primary focus. Gohn, of Vienna, substantiated this work with 184 autopsies on children dying of disease other than tuberculosis, but showing tuberculosis in its various stages, degrees, and distribution. Hamburger and Sluka later confirmed this work, and in this country identical results were obtained by Opie and Dunham.

There is perfect agreement among these investigators that the primary infection in thoracic tuberculosis is practically always by the inhalation route, and that the first focus is in the lung and all lymph node and regional gland changes are secondary to this primary lung focus.

Primary infection in tuberculosis.—Hamburger, of Vienna, has laid down the following laws in regard to primary infection in pulmonary tuberculosis. Infection occurs from human to human through inhalation. It occurs generally in childhood and very easily. Infection does not take place generally indirectly or by mere contact, but by the inhalation of bacilli-containing droplets expelled by forcible coughing on the part of an infected individual. The bacilli lodge first in the vesicular portion of the lung. Here a local tubercle forms and may remain as small as a millet seed or grow to the size of a hazel nut. In rare instances this lesion remains a local one without lymph node or glandular changes. Generally, however, there is early involvement of the intrapulmonary lymph nodes situated at the bifurcations of the bronchus supplying this area. Here the disease is temporarily arrested and may remain dormant for varying periods, but almost invariably, during pediods of lowered vitality, the bacilli are carried through the lymphatics to the root of the lung, where involvement of the bronchial and later the tracheobronchial glands takes place. The involvement of the glands at the root of the lung is always much greater than that of the primary focus or the change occurring in the pulmonary lymph nodes.

Age incidence of primary infection.—Hamburger, quoting statistics obtained from the poorer classes of Vienna, states that 1 per cent become infected during the first year of life; 10 per cent are infected by the end of the second year; 25 per cent at the end of the fourth year; 50 per cent at the end of the sixth year; 75 per cent at the end of the tenth year; and 95 per cent are infected by the end of the fourteenth year. Opie, working in this country with patients from a somewhat higher social level, found a lower incidence of the infection at the different ages noted. The fact that these two workers, one working with tuberculin and the other with autopsy material, obtained results so nearly identical, is of great interest, not only as regards the specificity of tuberculin, but as showing how constant the primary infection of the human is by the lung route.

Prognosis.—The prognosis of primary tuberculosis occurring in childhood is directly dependent upon the age of the child. The prognosis of infection occurring during the first two years of life is exceedingly grave. After the second year the prognosis becomes uniformily more favorable as the age of the child increases. Of the children infected during the first two years of life nearly one-half die within a short period. Of the children infected between the ages of two and four only one in twenty dies. Of those infected after the fourth year only one out of each hundred dies.

Primary infection contracted after the third year of life is not of importance per se. There does exist, however, the danger of dissemination from the rupture of a caseous gland into a bronchus or blood vessel with a resulting pneumonic or miliary tuberculosis. The danger is slight, however, when one considers the large proportion of children infected.

Adult type of infection occurring in children.—This type of infection is rare and of serious import. An occasional case may go on to fibrosis and healing, but the vast majority succumb to the disease. These cases of course are due to a second infection of the lung by the tubercle bacillus. In some cases this second infection comes from within, the organism being carried to the parenchyma of the lung by either the blood or lymph, or directly through the rupture of a caseous gland into a bronchus. The majority of investigators, however, believe that an adult type of tuberculosis occuring either in a child or an adult is generally due to a second infection from without and by the inhalation route.

REPORT OF CASES

Since the beginning of the present school term, all the tuberculous suspects among the graded-school pupils of Minneapolis, excluding those too ill to attend, have been referred for examination to Lymanhurst School. We have so far had the opportunity of studying stereoscopic chest plates of 70 of these children. The ages of these children range from 8 to 16 years. Fifteen, or 21 per cent, showed, as far as we could determine, no evidence of tuberculosis involvement of the lungs or glands. The remainder, 55 cases in number, or 79 per cent, showed definite evidence of tuberculous infection. In 49, or 89 per cent, we were able to detect a primary lung focus with involvement of the glands at the root of one or both lungs. Three cases, or 11 per cent, showed enlargement and calcification of the hilus glands, but without evidence of a primary focus. Three cases, or 4 per cent of the total number, were typical cases of adult type tuberculosis. In two of these cases we were able to demonstrate, in addition, a primary focus in another part of the lung. In the other case we were unable to demonstrate a primary focus, which was probably obscured by the thickened pleura. The primary foci were found in all parts of both lungs, there being practically an even distribution in the upper and lower lobes and on both sides. In three cases, or 5 per cent, there was more than one primary focus. These findings are in accord with the work done by Opie and Gohn on autopsy material.

CONCLUSIONS

1. The primary lung focus in childhood tuberculosis practically always occurs in the parenchyma of the lung and is inhalation in origin.

2. Involvement of the regional lymph nodes and hilus glands is the rule, and is secondary to the primary lung focus.

3. The prognosis in primary pulmonary tuberculosis of children is directly dependent on the

age at which infection takes place. It is grave during the first two or three years of life, and relatively unimportant occurring after this time.

4. Enlargement of the bronchial glands and alteration in the linear markings should not be considered tuberculous in the absence of calcification or a definite primary focus.

5. Adult type tuberculosis occurring either in the child or adult is always a second infection, which is generally from without and by the inhalation route. Its occurrence in childhood is rare, and it offers a grave prognosis.

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SOME GASTRO-INTESTINAL DATA IN A GROUP OF TUBERCULOUS CHILDREN

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This study of the children of Lymanhurst Hospital was undertaken for the purpose of—

First, finding out whether anything could be done from the gastro-intestinal standpoint to assist in the better understanding and more intelligent care of these cases, as we know in adults the integrity of the gastro-intestinal tract is often the most important factor in the cure of tuberculosis.

Second, studying the stomach and colon from the standpoint of chemistry and motility, and to ascertain the frequency of the presence of pus and bacteria in the stomach.

Third, learning something about the frequency of visceroptosis and weighing some of the usually discussed factors in its causation.

I have examined, routinely, eighty-seven children from the ages of seven to seventeen years. They have all had, first, a careful abdominal examination, palpating for points of tenderness, masses, liver, spleen, and kidneys, and measuring the intercostal angle.

They then had a meal consisting of one slice of bread and two glasses of water. The meal was removed by tube after forty-five to ninety minutes. The children were then given approximately 300 c.c. of cream of wheat with two ounces of barium sulphate and one glass of sweet milk. They were then, at intervals varying from three and one-half to five and one-half hours, fluoroscoped for residues, given 500 c.c. of buttermilk with two ounces of barium sulphate, and fluoroscoped again. Pictures were then taken standing and carefully studied for the position of the stomach and colon.

The amounts recovered from the stomachs varied from 20 c.c. to 200 c.c., the average being 50 c.c.; only four cases showed more than 100 c.c. The average for free hydrochloric acid was 25, ranging from 0 to 45. For total acid, the average was 44, ranging from 7 to 79.

The number of cases showing pus in the gastric contents after the Ewald meal was forty-eight in seventy-six cases, or 63 per cent, where this point was noted. Forty-five of these seventy-six cases had a careful survey of the teeth, tonsils, sinuses, and all showed open infection. Thirty-nine of them showed pus in the gastric contents; in six pus was not noted. The presence of bacteria was noted in all cases: diplococci, long and short bacilli, and occasionally streptococci, varying in amount and kind in different cases.

The fluoroscopic and radiographic studies showed, first, as to motility: the head of the meal was in the cecum in three cases; at the hepatic flexure in nine cases; in the transverse colon in forty-two cases; the splenic flexure in five cases; and the descending colon in thirteen cases.

In the great majority of normal adults the head of the meal is in the cecum in six hours, tending to show that the motility of the colon is much increased in children, as this was a series in which one would expect the muscular tone to be, if anything, lessened, and the average time of the meals was approximately five hours.

In sixty-four cases the average distance of the pyloric end of the stomach to the right of the right border of the spine was 2.6 cm., the farthest being 6 cm., and six cases being more than 5 cm. In only eight cases was the right border of the stomach to the left of the right border of the spine.

In the adult, just the opposite is true, the location of the stomach definitely to the right of this point being suggestive of some pathological condition, particularly so when the steer-horn type of stomach is excluded. This type was not noted in this series. The types noted were the atonic and sink-drain types.

In twenty-eight cases, or 33 per cent of this series, the lower border of the stomach was below the level of the iliac crests. This is less than reported by Severt, who found 53 per cent below this level in a series of eighty-three normal children. Twenty-three cases, or 26.4 per cent, showed the lower pole of the stomach 2.5 cm. or more below the iliac crests, the lowest stomach being 6.5 cm.

Of the cases ten years of age and below, numbering twenty-nine, 25 per cent showed the stomach 2.5 cm. or more below the crests; of the twenty-nine cases eleven to fourteen years of age, 38 per cent; of the twelve cases fourteen to seventeen years of age, 41 per cent, showing a very marked increase in the percentage with increasing age. Levy and Kantor showed in a series of eight hundred and ninety-eight adults, a percentage of 64.4 per cent below the level given above.

Careful measurements were also made of the position of the colon. The average was 4 cm. above the crests for the hepatic flexure, and 6.3 cm. for the splenic flexure. Of the cases where the stomach was 2.5 cm. or more below the crests, the averages were 2.7 cm. above the iliac crest for the hepatic flexure, and 4.6 cm. above for the splenic flexure. Of the cases where the stomach was higher than this point, the average was 4.5 cm. for the hepatic flexure and 6.9 cm. for the splenic flexure, showing that the colon varies in position with the stomach.

Of the total series, twenty showed palpability of the liver, spleen, or right kidney; of these, eight showed stomachs 2.5 cm. or more below the crests; twelve showed the stomach above this point. Of these twenty cases, three showed palpable liver and spleen, twelve showed palpable liver only, one showed palpable spleen only, and four showed palpable right kidney only. There was no relationship between the palpability of these organs to each other or to the position of the stomach.

Twenty-four per cent of the boys showed stomachs below the 2.5 cm. level, and 36 per cent of the girls. Levy and Kantor showed 57 per cent for men and 72 per cent for women.

A study of the relationship of the intercostal angle to the position of the stomach was made. For those cases 2.5 cm. below the crests, the average angle was 75.2 degrees; for the cases above this point, the average angle was 76 degrees; the angles varied from 45 to 105 degrees. There apparently was very little, if any, relationship.

A comparison of the position of the stomach to the body-weight was made. In the cases where the stomach was higher than 2.5 cm. below the crests, the average weight was three pounds below standard, standard being the Wood scale, and estimated by Dr. E. D. Anderson. Of the cases below this point, the average was eight pounds below this standard. In only one of these cases was the weight up to standard, and in this child the weight was two pounds above, and the stomach 4.5 cm. below the level of the crests.

On the other hand, there was one case 5.5 cm. above the crests with a weight eleven pounds below standard, two cases 1.5 cm. above the crests, showing weight twenty-five and thirty-five pounds below standard; showing that in this series there was a tendency to low stomach on the average in cases under weight; still, loss of weight is by no means the determining factor.

In this study, the following pathologic changes were found. There was one case with no free hydrochloric acid, and a total acidity of seven. This boy was four pounds under weight; temperature variation, 97.4-99.4 degrees; both liver and spleen were palpable; his blood showed a moderate secondary anemia and a 4 per cent eosinophilia; he showed a bad oral infection; and there were no gastro-intestinal symptoms.

Three cases showed over 100 c.c. removed from the stomach. One boy aged fourteen showed 200 c.c. after fifty-five minutes; there was no residue in five and one-half hours; he had a marked atonic type of stomach 4 cm. below the crests; he was thirteen pounds below standard weight; his temperature variation 98.2-99.2 degrees. There were no symptoms. A second child, aged nine years, showed 125 c.c. after sixty minutes; there was no residue in four hours; he had an atonic stomach 2.5 cm. below the crests; he was five and one-half pounds below standard weight; temperature variation 98.0 to 99.2 degrees; there were no symptoms. A third child, aged fifteen years, showed 125 c.c. after sixty minutes; there was no residue in five hours; he had an atonic type of stomach 1.5 cm. above the level of the crests; he was thirty-five pounds below standard weight; temperature variation, 98.0-99.2 degrees; there were no symptoms.

In addition there were two patients in whom we suspected chronic appendicitis because of tenderness over the lower cecum and a history of attacks of pain. The appendices were not visualized in twenty-four hours. Aside from these two cases no evidence of deviation from the normal was noted.

The series studied is too small to draw any very definite conclusions, but the study indicates—

First, that the capacity and chemistry of the stomachs in children over seven years of age are grossly, at least, the same as in a similar series of adults.

Second, that the stomach is placed much farther to the right in children than in adults.

Third, that there is only a very slight relationship, if any, between the intercostal angle and the position of the stomach.

Fourth, that low stomachs are very common in childhood, and apparently the percentage increases with age.

Fifth, that palpability of the liver, spleen, and right kidney is quite frequent, and bears no interrelationship to each other and no relationship to the position of the stomach.

Sixth, that, although weight bears some relationship to the position of the stomach, it is by no means definite. In fact, these observations would tend to suggest that there are other factors developmental, and possibly toxic concerned, etiologically, in viceroptosis.

INCIDENCE OF INFECTION OF MOUTH, NOSE, THROAT, AND EAR IN TUBERCULOUS CHILDREN

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In June, 1921, I had the opportunity of making a mouth, nose, throat, and ear survey of the children recommended for admission to the Fresh Air Camp of the Visiting Nurses' Association of Minneapolis. While the examinations and records were for the most part somewhat cursory, the information obtained was sufficiently convincing to establish the fact that a very large number of these undernourished children with positive von Pirquet reactions were suffering from marked oral, dental, and throat infections. It seemed quite obvious that many of these children were seriously handicapped in their fight for better health by the load they were carrying in the form of severe chronic gingivitis, alveolar abscesses, and chronic tonsillitis. As child after child examined showed such deplorable conditions of the mouth and throat, the impression grew upon one that both oral and tonsillar infections were undoubtedly more marked and more prevalent in these children than in a similar number of school children presenting to the nose and throat clinic of the General Hospital for treatment.

It would seem that several factors contribute in a varying degree to this condition, establishing in a sense a sort of vicious circle. It is certain that the infectious exudate accompanying a severe gingivitis and extensive dental caries not only contaminates the food ingested, but produces, aggravates, and makes chronic infection of the tonsils. The bad effects of such open oral infection have not been sufficiently stressed. Chronic tonsillitis and chronic alveolar abscesses frequently produce true focal infection, the harmful results of which are well known. Furthermore, the loss of several teeth or dental pain and discomfort interfere materially with the efficiency of mastication; and nutrition and growth are thereby impaired.

On the other hand, it would seem likely that a child suffering from tuberculosis and malnutrition would show an increased susceptibility to dental caries and its sequelæ. Be that as it may, efficient dental treatment and conscientious home care of the mouth will reduce oral infection to a negligible minimum and in most cases prevent its recurrence.

It is my impression, however, that the increased incidence of oral and tonsillar infection in these children is in a large measure due to the fact that the knowledge of the presence of tuberculosis has so taken up the attention of parent, physician, and social service workers that mouth and throat infections have been overlooked or considered unimportant, and consequently neglected. This is akin to the too frequent neglect of various associated conditions, including dental and tonsillar infections, in the individual suffering from syphilis, in spite of the observations of many writers that it is of distinct advantage to eradicate chronic focal infections as well as possible during the course of the antiluetic treatment. In tuberculosis it is obviously advisable to clear up all associated infection where possible.

With this thought in mind, a careful survey of the children at Lymanhurst School has been made to secure accurate data and make possible the application of all methods of treatment leading to the betterment of the physical condition of the child.

Cervical adenitis.—Enlargement of the glands of the neck on one or both sides was noted in all but one child of 110 examined. In 2 no glands could be felt on one side of the neck, small nodes being just palpable on the other. The remaining 107 children showed varying degrees of enlargement of the glands on both sides of the neck. They were classified as follows:

1. Glands just palpable, 16 per cent.
    - A. Both sides in 12 children.
    - B. One side in 12 children.
2. Slightly enlarged, 45 per cent.
    - A. Both sides in 33 children.
    - B. One side in 32 children.
3. Enlarged and usually multiple, 34 per cent.
    - A. Both sides in 23 children.
    - B. One side in 27 children.

Very marked enlargement was noted on one side only in 5 children. Three of these showed considerable oral and tonsillar infection. Two in addition suffered from syphilis.

Four children showed scars of operations upon cervical glands. Open suppuration was present in 1 child. In another child a large, posterior cervical gland has become fluctuant.

The large number of cervical gland enlargements found is an important index of the large amount of oral and throat infection present.

The oral mucosa.—In no child was found what would be considered a perfectly clean mouth. Eight were in fairly good condition. Slight gingivitis was found present in 52 children. More advanced gingivitis was noted in 50 children. In most instances the condition was largely due to neglect, though numerous badly broken down deciduous teeth constituted an important contributing factor in many cases.

Dental caries.—The teeth were considered to be practically free from caries in 38 children. Many of these children, however, had had badly infected teeth extracted recently. Thirty-two children presented moderate caries with all teeth presumably vital. In 40, dental caries was marked, many teeth being non-vital and presenting abscesses.

A careful dental survey conforming with that made of the school children of Minneapolis by the Minneapolis District Dental Society is being carried out at Lymanhurst. Irreparable teeth will be removed and restorative treatment instituted. Tooth-brush drill and other oral hygenic measures will be incorporated into the daily routine, and it is confidently hoped that in the very near future the mouths of the Lymanhurst children will be clean and free from dental caries. The examination to date demonstrates the deplorable conditions resulting from the very frequent neglect of the deciduous teeth. It also shows the marked incidence of early caries of the first permanent molars and the urgent necessity of systematic and determined measures to preserve the vitality and integrity of these most important teeth in order to ensure proper development of the jaws and normal occlusion, and to prevent pulpal infection culminating in alveolar abscesses and secondary systemic complications.

Tonsillar infection.—Thirty-seven children have had their tonsils completely removed, 14 additional have had tonsil operations with tonsillar remnants in varying amount remaining in one or both tonsillar fossæ. Many of these remnants are obviously infected. In but one child were found tonsils showing no enlargement nor congestion. Eleven showed slight congestion and 48 were definitely enlarged, congested, and infected. A large number of these were associated with marked gingivitis and dental caries. The mouths of 10 were in fair condition.

Adenoids were noted in 29 children. Routine mirror examination of the nasopharynx of every child was impossible, and this figure likely represents less than half of the children with adenoids. Nasopharyngeal discharge was noted in six cases.

The nose.—Thirty-eight children had fairly normal breathing space. The remaining children had diminished space due to septal deflections, or enlarged turbinates, often associated with imperfect development of the upper jaw.

Maxillary sinusitis was found present in two children.

Ear conditions.—In about 50 per cent of the children the ear drums showed loss of lustre and retraction. Chronic suppurative otitis media was present in 5 children. Evidence of old suppurative otitis media was found in 5 children. One child showed congenital malformation of the auricle and atresia of the external meatus.

To recapitulate, the examination of the children of Lymanhurst School reveals a marked degree of oral and tonsillar infection constituting a definite handicap to their physical welfare. Tuberculous children should have early and thorough dental prophylactic, surgical, and restorative treatment in order that the mouth may be made clean and mastication effective. The prevention or early elimination of oral infection would be accompanied by a marked decrease in the incidence of the chronic infection of the tonsils so frequently found in association with oral sepsis. It is my opinion that a large number of tonsils become chronically inflamed on account of the presence in the mouth and pharynx of an infectious exudate from an open oral infection. The teeth should be cared for promptly, and the mouth should be clean before tonsillectomy is performed. The removal of tonsils in the presence of extensive dental caries and gingival infection should be discouraged on surgical grounds. When followed by continued neglect of the dental conditions, the operation of tonsillectomy becomes discredited on the grounds that the laryngologist either does not recognize the importance of primary oral infection and insist on the co-operation of the dental surgeon, or, if cognizant of this fact, removes the tonsils, disregarding or avoiding any responsibility concerning the health of the mouth. Full and complete co-operation is essential in order to give the tuberculous child a 100 per cent opportunity to attain perfect health.

THE VALUE OF THE DETERMINATION OF THE VITAL CAPACITY OF THE LUNGS IN THE DIAGNOSIS AND PROGNOSIS OF PULMONARY TUBERCULOSIS IN CHILDREN

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Tuberculosis, a disease of slow and insidious onset, today frequently escapes detection in its incipient stage, the very period during which proper medical care has the most to offer to the patient. The difference in prognosis is so great between the early and the more advanced stages of tuberculosis that it is clearly the duty of the physician to employ all known methods of examination in an endeavor to establish an early and correct diagnosis. If physical examinations alone are relied upon errors in diagnosis are not infrequent. Either lesions present may be overlooked occasionally, or physical findings may be misinterpreted. The limitations are such that additional methods must be employed to reduce mistakes to a minimum. The von Pirquet and the Mantoux tuberculin tests are invaluable as aids in the diagnosis of tuberculosis, particularly in young children. A positive cutaneous reaction to Koch's old tuberculin establishes the fact that at some previous time the child has been infected by the tubercle bacillus, but, unfortunately, the test gives little information concerning the activity of the tuberculous focus. It is only in very young children that a positive tuberculin reaction is necessarily indicative of tuberculosis of clinical significance. However, repeated negative reactions in the absence of acute symptoms usually justify the conclusion that the child is free from tuberculosis. The *x*-ray is of inestimable value in establishing indisputable evidence of the presence and the extent of pulmonary pathology, particularly that which may escape detection on physical examination. Errors might arise, however, in deductions as to the etiology of the pathological changes present in the lungs were *x*-ray findings relied upon alone. It is evident, therefore, that accurate diagnosis established before the sputum contains tubercle bacilli, requires the employment of all methods of examination, together with a careful study of the symptoms manifested by the patients.

That the determination of the vital capacity of the lungs may be of some value in the diagnosis of pulmonary tuberculosis is suggested by the observations of Garvin, Lundsgaard, and Van Slyke (1918a, 1918b), Wittich, Myers, and Jennings (1919), and others, that this disease usually produces a reduction in the vital capacity of the lungs. The present study was undertaken to determine the value of such measurements in the diagnosis of tuberculosis in children.

To date, vital capacity measurements have been obtained for 89 boys and 78 girls between six and fifteen years of age, inclusive. These children are attending the Lymanhurst and Trudeau Schools in Minneapolis because they are underweight, in general poor health, subject to respiratory infections, and have been definitely exposed to open cases of tuberculosis in their immediate families. All the children included in this group have positive von Pirquet tuberculin tests, and thus are known to have been infected by the tubercle bacillus at some previous time. *X*-ray plates have been taken in most instances, and in a few cases definite evidence of pulmonary pathology of the adult type has been revealed. The great majority of the plates, however, show little aside from a few calcified nodules or enlargement of the glands at the hilus of the lungs. A few of the children included in this group have definite tuberculosis of either the cervical glands or the bones. Regardless of the type of tuberculosis present all the data are averaged together (sexes separated) in Table III according to age as estimated from the nearest birthday.

The vital capacities were measured by means of a Sanborn wet spirometer. The children were carefully instructed to take the deepest possible inspiration and then to empty the lungs completely into the spirometer. The maximum repeatedly expired was recorded as the vital capacity. The standing height (in stocking feet), sitting height, and naked weight were recorded for each individual. The averages recorded for the vital capacity are not corrected for temperature, barometric pressure, or aqueous vapor tension.

Before undertaking a discussion of the results of the present study it is advisable first to men-

TABLE III

Number of cases, age, weight, standing height, vital capacity, and normal vital capacity for corresponding age and height for boys and girls (sexes separated) attending Lymanhurst and Trudeau Schools for Tuberculous Children.

BOYS

No. of Cases	Age in years	Weight in lbs.	Stand. weight in cm.	Vital capacity in c.c.	Normal vital capacity for corresponding age and height
2	6	45.0	112	1075	1090
8	7	53.5	118	1422	1310
5	8	50.6	124	1490	1560
8	9	59.6	131	1622	1780
14	10	65.4	133	1777	1825
12	11	70.0	139	2085	2060
11	12	75.2	145	2305	2230
23	13	81.3	148	2279	2375
2	14	85.5	143	2475	2325
4	15	94.0	155	2722	2800

GIRLS

No. of Cases	Age in years	Weight in lbs.	Stand. weight in cm.	Vital capacity in c.c.	Normal vital capacity for corresponding age and height
4	7	45.0	119	1281	1260
6	8	47.0	122	1265	1325
7	9	54.7	127	1525	1530
10	10	61.6	134	1653	1700
9	11	66.6	140	1822	1950
13	12	75.5	145	2040	2100
16	13	82.8	148	2266	2225
5	14	102.0	155	2285	2500
8	15	129.0	157	2628	2700

TABLE I

1200 BOYS

Table showing the normal vital capacity of the lungs for different standing heights at each age.

Standing Height	98	103	108	113	118	123	128	133	138	143	148	153	158	163	168	173	178	183	188 cm.
Age 5	650	760	870	980															
Age 6		800	945	1090	1210	1330													
Age 7			1100	1200	1310	1425	1550	1600	1750										
Age 8				1240	1350	1500	1650	1725	1800										
Age 9				1375	1450	1550	1675	1780	1910	2050									
Age 10					1500	1600	1720	1860	2000	2100	2150								
Age 11						1625	1750	1875	2025	2150	2200								
Age 12						1650	1775	1900	2050	2200	2275	2450	2550	2700	2900				
Age 13								1900	2100	2250	2375	2525	2675	2900	3175				
Age 14									2100	2325	2450	2600	2825	2975	3300	3600	3900		
Age 15										2375	2500	2700	2925	3150	3500	3800	4000		
Age 16											2500	2700	3100	3200	3640	3950	4100		
Age 17												3100	3400	3775	3975	4200	4350	4400	
Age 18													3500	3900	4100	4250	4400	4450	

tion the normal standards of vital capacity used for comparison. For the normal standards we have chosen to rely upon averages obtained during the past three years from a study of about 2,400 Minneapolis school children. In Tables I and II the averages obtained from this source for each standing height at the different ages (sexes separated) are recorded. Analysis of these data indicates that 75 per cent of healthy Minneapolis children have vital capacities equal to or exceeding 90 per cent of the average for corresponding age, sex, and height. Only one-fourth of the child population, forming a distinctly inferior group in this respect, have vital capacities 10 per cent or more below the average. In view of the above findings, it appears that deviations of vital capacity to 10 per cent below the estimated normal cannot be considered as abnormal. Beyond this limit, however, the probability that the observation is subnormal increases in proportion to the extent of the deviation of the observed vital capacity below that expected. Individuals of this group representing the poorer 25 per cent of the child population probably deserve special study to eliminate pulmonary disease as a factor causing their low standard of physical fitness. The fact that a child has a perfectly normal vital capacity, however, does not exclude the necessity of thorough examination when suspected of having tuberculosis, for occasionally the vital capacity may be normal, even in the presence of serious disease of the lungs.

The average vital capacity of the lungs for the children attending Lymanhurst and Trudeau Schools (Table III) appears to be practically normal for each age group. The greatest deviation is noted for the five girls fifteen years of age, whose vital capacity averaged 215 c.c. or 8.6 per cent below the estimated normal. For the other groups smaller differences exist, and in several instances the average lung capacity actually exceeds the normal expected for corresponding age, sex, and height. If the data for all ages and for both sexes are combined, making proper allowance for the number of individuals in each group, the average observed vital capacity for the 167 children is 1943 c.c., whereas the average estimated normal amounts to 1990 c.c. The group

TABLE II
1200 GIRLS
Table showing the normal vital capacity of the lungs for different standing heights at each age.

Standing Height	88	93	98	103	108	113	118	123	128	133	138	143	148	153	158	163	168	173 cm.
Age 5	600	650	700	825														
Age 6			800	850	925	1050	1100											
Age 7				900	1050	1200	1250	1300	1375	1450								
Age 8				925	1100	1225	1275	1375	1450	1600								
Age 9						1250	1300	1400	1530	1650	1750	1850						
Age 10						1250	1330	1430	1590	1700	1825	1950	2100	2200				
Age 11							1350	1450	1600	1750	1900	2020	2125	2225				
Age 12								1500	1650	1775	1925	2090	2150	2300	2450	2550		
Age 13								1600	1750	1900	2000	2150	2225	2350	2475	2650	2850	
Age 14											2100	2225	2300	2475		2725	2950	3100
Age 15												2250	2325	2510	2700	2800	3000	3125
Age 16														2600	2750	2850	3050	3150
Age 17														2625	2800	2975	3100	3200

as a whole, therefore, has a perfectly normal vital capacity, in spite of the fact that it represents children selected as suspected and potential cases of tuberculosis. Of the individuals, however, seven children with apparently normal lungs have vital capacities ranging from 12 to 25 per cent below the expected value. In these instances future determinations will probably prove of value in detecting any progressive tendency toward decreasing vital capacity. If the above low readings are due to anatomical rather than to pathological conditions the relationship established between the observed and the expected vital capacity should persist on subsequent measurements. Any tendency for the lung capacity to become increasingly subnormal should create suspicion that disease, either of the lungs or of the heart, is responsible.

One of the children of this group, whose vital capacity was apparently subnormal, has a markedly positive von Pirquet reaction, and rather indefinite physical findings aside from abnormal harshness of breath sounds at the apices. During the period of her attendance at the Lymanhurst School she has gained weight, is free from cough, and seldom has any elevation in temperature. The normal vital capacity expected for this girl is 1925 c.c., whereas that observed was 1690 c.c., or about 12 per cent below the estimated normal. Her vital capacity, while not markedly subnormal, nevertheless was sufficiently low to arouse suspicion that some pulmonary disease might be responsible. In this instance the *x*-ray revealed lesions at both apices resembling the adult type of tuberculosis, which were interpreted as being tuberculous in origin. Here the determination of the vital capacity was of some value in creating suspicion that the lungs were not normal in spite of the fact that the lesion was not detected on physical examination. Subsequent periodic determination of the vital capacity of the lungs of this girl will probably detect any tendency for the pathological process present at the apices to encroach further upon the surrounding lung tissue by revealing an immediate and progressive decrease in the vital capacity.

For eight of the children of the group attending Lymanhurst School a second measurement of their vital capacity has been obtained several months after the initial determination was recorded. (Fig. 1.) Of these, individuals 2, 3, 4, 5, 7, and 8 have initial and also second vital capacity measurements which are practically normal, and thus show evidence of satisfactory growth in lung capacity during this interval. The maintenance of a normal vital capacity during this period is probably of favorable prognostic significance, for apparently their tuberculosis is quiescent at least so far as its effect upon the vital capacity is concerned. The initial vital capacity observed for Case 1 was about 18 per cent below the expected normal. Two years later, however, the vital capacity for this individual was practically normal, falling only 5 per cent below that expected. With boy No. 6 the initial vital capacity was about 14 per cent below his estimated normal, while two years later his vital capacity was 15 per cent subnormal. In this instance the boy has maintained practically his initial relationship to the normal. Furthermore, his growth in lung capacity apparently has not been retarded by any pathological process during the interval between the two observations.

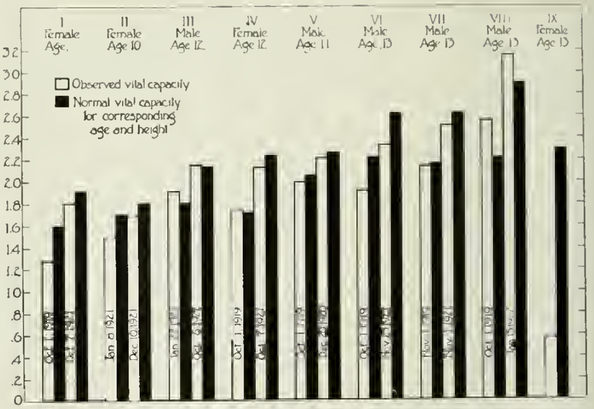

Fig. 1. Chart showing the observed initial and subsequent vital capacity and normal vital capacity for corresponding age, sex, and height for eight children, (Cases 1 to 8, inclusive) attending Lymanhurst and Trudeau Schools for Tuberculous Children, and for one child (Case 9) having advanced pulmonary tuberculosis.

The vital capacity for girl No. 9 is recorded to show the extreme reduction pulmonary tuberculosis may produce. This patient has extensive pulmonary tuberculosis, with cavities present in each lung. Her vital capacity at the time examined was only about one-fourth the estimated normal. In this instance had determinations been made at intervals following the onset of her tuberculosis, the records, undoubtedly, would have shown a progressive decrease in the vital capacity, paralleling the progress of the tuberculous involvement of the lungs. This suggests the possible value of repeated determination of the vital capacity in enabling one to detect progressive changes occurring in the lungs as a result of active pulmonary tuberculosis.

SUMMARY

The average vital capacity of the lungs of 167 children attending the Lymanhurst and Trudeau Schools for tuberculous children was practically normal for corresponding age and height.

Of the individual cases seven children had vital capacities ranging from 12 to 25 per cent below their estimated normal. With these individuals, particularly, repeated subsequent determinations of the vital capacity no doubt will reveal through its effect upon this measurement any tendency for the tuberculous process to encroach further upon the surrounding lung tissue.

The determination of the vital capacity of the lungs may occasionally be of value in the diagnosis of pulmonary tuberculosis. Normal variability, however, renders the detection of small deviations below the normal rather difficult, and thus greatly limits the value of this measurement as an aid in the diagnosis of pulmonary tuberculosis in the incipient stage.

On repeated examinations of individuals suspected of having tuberculosis there should be very little constant deviation in vital capacity below previous determinations. The occurrence of any permanent or progressive diminution in the vital capacity below previous records will give immediate clue to the development or extension of pathological processes within the chest.

Repeated measurement of the vital capacity of the lungs is, therefore, of great value in enabling one to estimate the progress of the disease present in the lungs, for changes in the pulmonary pathology are promptly reflected as changes in the vital capacity of the lungs.

Repeated measurement of the vital capacity is also of prognostic value. A progressively decreasing vital capacity indicates the presence of an active and spreading lesion, whereas with an increasing or stationary vital capacity the indications are that the lesion present is either quiescent or is subsiding.

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A STUDY OF THE BASAL METABOLISM AND THE THYROID GLAND IN A GROUP OF TUBERCULOUS CHILDREN

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MINNEAPOLIS

Estimation of the basal metabolism and observations concerning the thyroid gland and associated findings have been included in this brief study of a group of tuberculous children. What bearing the degree of activity of the tuberculous process, together with the state of nutrition, the temperature and pulse rate, age, and sex of the individual have upon the estimated heat production have been the points of chief interest. McCann and Barr,[1] in a study of tuberculous adults, concluded that the basal metabolism may be normal or slightly above for the average of the age observed. In ten cases they report that it varied from minus 3 to plus 15 per cent. These investigators conclude that in some instances loss in weight may be accompanied by a reduction in metabolism, which more than compensates for the tendency to increase caused by the disease. They note that further increase in metabolism occurs with rise of body temperature and that with a temperature of 104° Fahr. the basal metabolism may be 30 per cent above the average normal. Another observer, Kocher,[2] reports that in fifteen cases of afebrile pulmonary tuberculosis the basal metabolism was from a few per cent above to a few per cent below the average normal. McBrayer[3] found that in twenty-three incipient cases 61 per cent showed the basal metabolic rate to be increased above plus 10 per cent, and concluded that the basal metabolic rate is of no practical value in the differential diagnosis of chronic pulmonary tuberculosis and hyperthyroidism.

There has been no conscious selection of cases, but the percentage of children with enlarged thyroid glands is higher in the group studied than in the total number of cases from which this group was derived. The age incidence has varied from eight to fifteen years, in the majority from twelve to fifteen. In view of the age of adolescence, in the majority of cases, it may be well to quote Benedict and Hendrie,[4] who found little, if any, special influence of puberty or the prepubescent stage on the metabolism of growing girls.

Six girls and four boys were included in the group. The degree of activity of the tuberculous process, as obtained from the records, has been slight with temperature range from 98.6° to 100°; in the majority of cases never above 99.4°. The pulse rate averaged about ninety. The weight of these children has averaged about ten pounds below normal standards. In two cases rather marked under-nutrition was observed.

The thyroid gland was distinctly palpable in the ten individuals. In one of these the gland was larger than that commonly observed at adolescence and might be classified as a colloid goiter. In other instances the enlargement was diffuse, symmetrical, and non-vascular, and of the consistency often noted in simple, so-called physiological enlargement of the thyroid gland in the adolescent period. No signs suggestive of hyperthyroidism were present in any case. It may be noted that in thirty-six cases, twenty-two, or over 60 per cent, had palpable enlargement of the thyroid gland, which was approximately as frequent before as at the age of puberty. This is probably a higher percentage than found in normal children, though figures for comparison are not available for either sex. Of interest in this connection is the very frequent oral infection and cervical adenitis in the group studied. Inanition and resistance of the thyroid gland in that condition may be a factor.

The Tissot method of determining the basal metabolic rate has been used with the Haldane apparatus. The usual precautions were taken to have the patient in the post-absorptive state twelve to fourteen hours after food intake and after a twenty-minute rest period. Comparison has been made to the normal standard per square meter of body surface, as suggested by Aub and Du Bois,[5] from fourteen to sixteen years and in boys only from twelve to fourteen years. Comparison has been made below fourteen years of age to standards of Talbot[7] per square meter of body surface of Lissauer's formula obtained by Benedict and Talbot as the result of investigation on 258 normal infants and children and by Benedict and Hendrie[8] on girls from twelve to seventeen years of age.

Here must be mentioned the difficulty of establishing normal standards. Benedict states that predictions of the greatest accuracy may be made referred to surface area for ages ranging from twenty to forty years, but that outside that range the greatest care must be taken. In the opinion of Benedict and Hendrie, the normal standard of calories per square meter of body surface proposed by Du Bois is 15 per cent and more above the average normal that they found in groups of girls from twelve to seventeen years old. They maintain that greater accuracy can be obtained with a standard of calories per kilogram of body weight referred to age.

The basal metabolism has varied from minus 6 to plus 47 per cent in the group studied, excepting the high extreme in one case, which was not checked, from minus 6 to plus 25 per cent. There were eight cases in which the estimated heat production was above the 10 per cent normal variation.

TABLE A
BASAL METABOLISM
Per cent above or below average normal per square meter of body surface.

Patient	Sex	Age	Pulse	A	B
M. N.	M	15	90		— 5
L. H.	M	13	86	+ 15	+ 3
E. J.	M	12	84	+ 20	— 6
E. E.	M	9	90	+ 47	+ 4
E. B.	F	15	100		+ 13
H. K.	F	10	92	+ 25	— 7
G. J.	F	12	75	+ 16	— 4
M. G.	F	12	100	+ 17	— 8
M. C.	F	15	82		+ 8
A. A.	F	13	94	+ 14	— 8

Note.—A. Compared to standards suggested by Talbot.
B. Compared to standards suggested by Du Bois.

Results should be interpreted keeping in mind that the physical development of growing normal children varies within wide limits and consequently variations occur in their basal metabolism, as has been mentioned by Talbot. With relation to nutrition it is seen that five underweight children showed greater estimated heat production than five of approximately normal weight. It should also be mentioned that all in the group observed were receiving a high calorie diet. In two instances comparison was made to two standards; that to Talbot's is seen to be 12 and 26 per cent greater than that to Du Bois'.

Remembering Benedict's finding, that there is a distinct tendency for the lighter weight children to have the higher metabolism per square meter of body surface, it is difficult to conclude that the tuberculous process in the group studied has had any marked effect. The associated under-weight must be considered as an important factor in giving increased basal metabolism compared to body surface area. Due to this increase it would appear that little, if any, information of value could be obtained in the group studied in the differential diagnosis of tuberculous infection and hyperthyroidism.

While it would be inadvisable to draw general conclusions from the small group studied at the age when normal standards are difficult to ascertain, it would appear that there is a distinct tendency for the basal metabolism to be above the average normal per square meter of body surface. When compared to Talbot's the estimated basal heat production becomes definitely above normal limits.

CONCLUSIONS

1. On a small group of undernourished tuberculous children there has been noted frequent enlargement of the thyroid gland.
2. In one case compared to one standard and in seven compared to another the basal metabolism has been above the normal limits of variation.

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A COMPARISON OF THE HEIGHT-WEIGHT INDICES OF SUSPECTED TUBERCULOUS AND NORMAL SCHOOL CHILDREN

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MINNEAPOLIS

Among the measures most frequently employed for estimating the physical development of children are those based on the three factors of the age, the body height, and the body weight. At present these determinations are made in two ways. The first is by the use of height-weight tables, several of which are available, which give the average weight of the body for various heights at different ages. The second is by the use of some index of the relation between height and weight, which may be calculated either for various body heights or for various ages. Each of these methods has its uses; the former is perhaps the more practicable for every-day use, while the latter is the more valuable for the comparison of various groups of children.

The following is a preliminary report on the application of this form of measure to a group of children suspected or proved to be with tuberculous infection and to compare the results with those obtained from average unselected children.

The comparison is based on the records of the first 100 children examined at the Lymanhurst School for Tuberculous Children. These cases were taken without selection. The weight without clothing and before any of the patients had entered the institution was taken in pounds and quarter pounds; and the height without shoes was taken in inches and quarter inches at the same time. From these data the height-weight index was calculated separately for each case by Bardeen's method, which consists of dividing the weight in pounds by one-thousandth of the cube of the height in inches. The results were then plotted against Bardeen's typical curves of height-weight indices for given heights and height-weight indices for given ages, which are based on the average heights and weights of a very large series of American children.*

The results of this preliminary study were as follows:

Height-weight index for age. — Taking both sexes together 42 per cent of the children equalled, or were above, their typical height-weight index for age and 58 per cent were below it. The males and females showed no important difference in this respect; however, there were great differences between children of different ages. Thus there were 20 boys below ten years of age and of these 11, or 55 per cent, were above the typical index, and 45 per cent were below it. On the other hand, of the 31 boys of ten years or over, only 11, or about one-third, were up to or over the typical index, while nearly two-thirds were below it. Similarly, the younger girls below ten years were below the typical index in only 36 per cent of the cases, while those over ten years were below the typical index in only 61 per cent of the cases.

Height-weight index for height.—Considering both sexes, the typical index was equalled or exceeded in 44 per cent of the cases and was not reached in 56 per cent. The boys, however, equalled or passed the typical index in a little over half of the cases (53 per cent) while only about one-third of the girls (31 per cent) were up to or above the typical index number for their heights. The children ranged in height from 42 to 65 inches, and for further study the cases were divided into shorter groups including all individuals from 42 to 53 inches in height and taller groups including all cases above 55 inches in height. This grouping brings out marked differences in height-weight index. Only one-third, or 32 per cent, of the shorter boys fell below the typical index, whereas over four-fifths, or 18 per cent, of the taller boys showed an index below the typical one. In the same manner 36 per cent of the shorter girls were below their typical index for height, while of the group of taller girls 61 per cent fell below it.

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*Bardeen, C. R. (1919): The height-weight index of build, etc., Carnegie Institute of Washington, Publ. No. 272, pp. 483-554.

SUMMARY

Of the first 100 suspected tuberculous children examined at Lymanhurst between one-half and three-fifths were below the typical height-weight index for age and about two-thirds were below the typical index for height. There was no sex difference in the index for age, but the boys were distinctly above the girls in the index for height. Children below ten years were much less frequently below index than older ones. The shorter children, who also were in many instances the younger ones, were above the typical index in the majority of instances. Conclusions drawn from so small a number of cases must be drawn with care and, at best, are only tentative. The figures seem to indicate, however, that relatively low weights are characteristic of the taller and older, and not of the shorter and younger, members of this group. It also seems that the typical height-weight index figures now available are somewhat too low for children of this community, particularly when calculated for age, and that it is highly desirable to secure local norms or overages for the purpose of future comparisons.

TABLE I

Comparison of height-weight indices for age of suspected tuberculous and average children

Suspected tuberculous children	Total number of cases	Number of cases above typical index	Per cent of cases above typical index	Number of cases below typical index	Per cent of cases below typical index
Males and females	100	44	44	56	56
Males	51	22	43	29	57
Females	49	22	45	27	55
Males, 6 to 10 years of age	20	11	55	9	45
Males, 10 to 16 years of age	31	11	35	20	65
Females, 6 to 10 years of age	11	7	64	4	36
Females, 10 to 16 years of age	38	15	39	23	71

TABLE II

Comparison of height-weight indices for height of suspected tuberculous and average children

Suspected tuberculous children	Total number of cases	Number of cases above typical index	Per cent of cases above typical index	Number of cases below typical index	Per cent of cases below typical index
Males and females	100	42	42	68	68
Males	51	27	53	24	47
Females	49	15	31	34	69
Males from 45 to 55 inches in height	31	21	68	10	32
Males from 55 to 65 inches in height	20	6	30	14	70
Females from 42 to 55 inches in height	21	11	52	10	48
Females from 55 to 65 inches in height	28	5	18	23	82

OBSERVATIONS ON THE NEUROLOGIC AND MENTAL STATUS OF A GROUP OF TUBERCULOUS CHILDREN

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MINNEAPOLIS

The rôle of tuberculosis in diseases of the nervous system is certainly an important one. It has long been recognized that tuberculosis is one of the five or six factors capable of modifying the germ plasm within one generation. As an etiological factor in the causation of nervous diseases tuberculosis is regarded by many as one of the most important. Chronic toxic conditions are known to cause degenerative changes in the nervous system. Recent studies have shown that the vegetative nervous system is one of the most important factors in the regulation of the various bodily processes and, further, that any chronic toxic condition acts especially upon this vegetative nervous system. Pottenger[1] has shown that toxemia manifests itself through a sympathetic stimulation. The endocrine glands, which, undoubtedly, have an important rôle in bodily processes, are in especially close relationship to the vegetative nervous system; thus a toxic condition brings about a vicious circle acting upon the nervous system, and this in turn upon the endocrine glands, which again act in a harmful way upon the nervous system. It is certainly to be expected that in tuberculosis, where there is a constant bombardment of the nervous system, changes, both of an organic or structural and functional type, must be brought about.

Other than for general statements that tuberculosis is one of the etiological factors in such nervous and mental conditions as multiple sclerosis, progressive muscular atrophy, mental deficiency, and the functional nervous diseases, there is a paucity of literature as to the nervous and mental status of children with tuberculosis. McCarthy[2] states that in children born of tuberculous mothers in the last stages of the disease there are not infrequently present defective stability, lack of control, as manifested by hysterical and neurasthenic states, and especially a tendency to drug habits, alcoholism, etc. This fact should be recognized. and special care used in training and educating such children. In reference to Chvostek's sign in children, Verose[3] states that it was positive in 21 per cent of 413 children between five and nine years of age; that it was positive in 28.5 per cent in children with rickets; positive in 21.8 per cent of 41 children with tuberculosis; and in 23.7 per cent of children apparently free from tuberculosis, tetany, and rickets. Schlesinger is quoted in Lewandowsky[4] as stating that a Chvostek III sign is common in the beginning of pulmonary tuberculosis. Pottenger[1] has called attention to the irritability of the nerve cells, which is manifested by lowered threshold of response and the consequent effect of stimuli which in health are not capable of demonstrably influencing the nervous system. Vogt[5] quotes Claude and Schoeffer as stating that epileptics show an especial resistance to tuberculosis. Rachford[6] states that tuberculosis, of all the chronic microbic diseases, stands in closest relation to the neuroses of childhood, especially in relation to idiocy and insanity. He regards chronic lymph-node tuberculosis as an important etiological factor in chorea.

In the study of the nervous and mental status of fifty-five children suffering from tuberculosis I made the following observations: The pupils were large in seventeen instances, moderate in size in thirty-one, and small in three. They were eccentrically placed in one child. The pupils were irregular in ten cases, and were unequal in eight. The pupils reacted normally to light in thirty-two cases, and the reaction was impaired in eight cases. The eyes were especially prominent in eight cases, and in four the lid slit was distinctly greater on one side than on the other. There was a lid lag in four cases. A definite nystagmus was noted in four cases and a nystagmoid movement in nine cases. Two children showed a left internal strabismus, and one a right internal strabismus. I endeavored to elicit Chvostek's sign in twenty-two children. It was negative in sixteen, slightly positive in five, and distinctly positive in one. The knee-jerks were normal in eighteen cases. They were diminished in four. There were moderate exaggerations in seventeen, and very marked exaggerations in four. There was inequality of the knee-jerks in three cases. There was a moderate tremor of the extended hands or eyelids in seven cases and a very marked tremor of the extended hands in fourteen. One child showed a marked restlessness amounting almost to a choreic type of disturbance.

Vasomotor disturbances,—cold hands, sweaty hands, and cyanosis,—were noted in four children. Three children complained of headache, one of them having a migrainous type. Three children gave a history of convulsions, one up to a period of two years ago and the other one has convulsions three or four times a year up to the present time. One child showed a puffy, myxedematous-like face. I did not especially note the matter of stigmata of degeneration, but four children showed widely spaced teeth, and one had very definite Darwinian tubercles. Hearing was definitely impaired on one side in four children, one of these giving a history of a discharge. One child showed a very large head, suggesting moderate hydrocephalus.

Sixteen children state that they were nervous; naturally these were older children. Most of these same children were objectively nervous, showing restlessness, etc.

In reference to the mental status: These children averaged about one grade below the normal. I classified the children by half-year ages, but as they were about equally divided between the first and second halves of the year, it gives a fair estimate to study them by year-age periods. Eight-year-old children have reached grade 2; nine-year-old, grade 3-2/7; ten-year-old, grade 4-3/8; the eleven-year-old children, grade 5-1/2; twelve-year-old, grade 5-1/15; the thirteen-year-old, grade 6; fourteen-year-old, grade 6-1/2; and the fifteen-year-old, grade 6-3/5. It is seen that the retardation becomes more evident as the children advance in age.

I have classified these children from the standpoint of mentality in the following groups: normal; slightly above normal; slightly below normal, including children who might be grouped as normal, but would come in the lower limits of this group or as moderately backward children. I have included under the term "dull" those children who would give an intelligence quotient of about 80 to 90; I have included in the borderline group those children who might be regarded as dull or possibly as feeble-minded. In the last group, which I have termed feeble-minded, I have included those children who show marked retardation and would have an intelligence quotient below 70. This grouping is made up partly from my observation of the child and his rating with the mental age determination. The mental age test alone certainly is not an accurate index of the mental status of these children, for some of them who tested fairly well were certainly retarded and the reverse was true also. I estimated that seventeen of the fifty-five children were of normal or average mentality; three of them were distinctly above normal. There were fifteen children who were slightly retarded mentally and ten whom I grouped as "dull." Of these ten, one also had syphilis, and a second probably was a case of congenital syphilis, as well as of tuberculosis. There were seven children that I grouped as borderline cases; and of these possibly three should have been termed feeble-minded. In addition there were two who were definitely feeble-minded children.

It is of interest that I found these children distinctly more defective mentally than their status in school would indicate. From my examination I would have thought these children would grade distinctly lower in school than they have. The explanation for this is possibly the special attention these children receive and the type of life they live in the school. I have no doubt that periods of rest and feeding make it possible for these children to show distinctly more advance in their school work than they otherwise would. There was a somewhat higher percentage of children who evidently were quite ill in the retarded group than in the normal group.

The points in the neurological examination that impressed me most forcibly were the number of children showing large pupils, although the number of these did not prove as great on tabulation as I had expected. Only eight children showed definite inequality of pupils; there was a distinct impairment to the reaction of light in eight children. The prominence of the eyes in eight children and the inequality of the lid slits in four was a rather striking feature. One of the most frequent findings and one which probably shows the instability of the nervous system was the nystagmus or nystagmoid movement found in a total of eighteen children. About half the children showed normal knee-jerks, and half gave distinctly hyperactive responses. There was less evidence of a functional nervous disturbance than I would have expected.

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A STUDY OF THE CLINICAL AND PHYSICAL FINDINGS AND THE TUBERCULIN REACTIONS IN A GROUP OF TUBERCULOUS CHILDREN

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MINNEAPOLIS

Because of the excellent prognosis of tuberculosis in children of school age, if properly treated, it is of great importance that it be diagnosed in its early stages. Because of the scarcity of physical findings in children suffering from this disease, many cases go unrecognized. In dealing with this problem, it is essential that one realize that both the clinical and the physical picture in tuberculosis in children differs decidedly from that in adults. This has not been clearly understood until comparatively recent years, and the result has been that children actively tuberculous have not been recognized as such, because clinicians have been expecting typical pulmonary findings, which are so often present in adult tuberculosis. Childhood tuberculosis is principally a glandular condition and not a pulmonary one, and it is usually only in the advanced cases that we get physical and clinical findings which are pulmonary in character. In those cases it is usually in infants and young children and is in the form of a miliary tuberculosis, which is always fatal, or a tuberculous pneumonia, which in a large percentage of cases is fatal.

In the study of this group of children observed at Lymanhurst, I shall endeavor to show (1) the most important clinical symptoms that were found in these children; (2) the most common and significant physical findings; (3) whether physical findings are always present in the presence of a positive tuberculin reaction and clinical symptoms; (4) whether clinical symptoms are always present when the child gives a positive tuberculin reaction and positive physical findings; (5) whether positive *x*-ray findings are always accompanied with positive clinical or physical findings.

I think, before giving the results of our work, it will be well to review, briefly, the work of Albrecht and Gohn in regard to the pathology and mode of spread of tuberculosis in the body. From their autopsy studies they demonstrated that, in the great majority of cases, the tubercle bacilli of the human type are inhaled and first lodge out in the periphery of the lung, where they set up a local reaction, and we have developed a lesion varying in size from a pea to a hazelnut. The primary focus may be in the tonsil or, in the bovine type, in the intestinal mucosa, but as the most common is in the lung I shall only discuss that.

From the primary lesion in the lung the tubercle bacilli tend to spread, and the invasion may take place by any of the following routes: (1) through the lymph channels; (2) by direct extension; (3) through the air passages; (4) by way of the digestive canal, and (5) through the blood stream.

In childhood the first extension is almost always by way of the lymph channels to the nearest lymph nodes, which are those surrounding the bronchi and the bifurcation of the trachea.

In the glands a tuberculous process is started and may develop into caseation or fibrous encapsulation or calcification. Invasion from the lymph glands may take place by direct extension to the surrounding tissues, or they may break down into the blood stream and cause a miliary tuberculosis, or they may break into one of the air passages and a tuberculous bronchopneumonia may develop. In some cases the tubercle bacilli are coughed up and then swallowed, and infection of the intestinal mucosa takes place.

In the great majority of children of school age suffering from tuberculosis, if the condition is recognized early, the process can be limited to lymph glands by proper treatment and the condition kept under control and finally conquered. It is when the condition has spread from the glands that the prognosis becomes poor. It is because of this fact that the early recognition of tuberculosis in children is so important.

On studying and examining these children, we were immediately impressed with two things: (1) the number of children who showed very few, if any, physical findings, but who were undoubtedly actively tuberculous, as shown by their clinical history, their tuberculin reaction, and their *x*-ray picture; (2) the number of children who gave a positive tuberculin reaction and had physical findings and an *x*-ray picture pointing to hilus gland enlargement, but who clinically showed no evidence of tuberculosis.

However, the majority of the children in the school show some clinical evidence of tuberculosis along with their positive tuberculin reaction, positive *x*-ray, and, in many cases, positive physical findings. If we were to diagnose tuberculosis in children on the basis of a physical examination alone, many mistakes would be made. Some of these children who are undoubtedly active show no physical findings whatever. Most of them do show some positive findings, but only occasionally are they other than an evidence of hilus gland enlargement. Although there have been over 140 children who have been in Lymanhurst during the last year at some time or other, the figures given below are taken from the study of only 60, whom we considered actively tuberculous. Many of the others were non-active, and I did not consider them in this paper.

The most important clinical findings which we found in this group of children were as follows:

1. Malnutrition: Sixty-one and two-thirds per cent were more than 7 per cent below the standard weight for their age and height. Some of the children were markedly under-weight.

2. Temperature: Forty-five per cent of these children ran a daily temperature above 99.5.° The great majority of this 45 per cent ran temperatures from 99° to 100,° but some went as high as 101.4.°

3. Fifty-eight and one-third per cent of these children gave a positive history of exposure, and in all cases this was from other members of the family.

There were other symptoms, such as cough, malaise, lack of endurance, and anorexia, but we found that our original histories taken in regard to this were not reliable and a new study of this is now being made. However, I can definitely state that the number of children showing these symptoms is decidedly less than those who are under-weight and those who run a temperature.

The most important physical findings that were obtained on examination of these children were as follows:

1. D'Espine's sign: Normal whispered bronchophony ceases at the level or above the 4th dorsal vertebra. If there is enlargement of the bronchial glands this can usually be heard below this point. D'Espine stated that the limit of normal bronchophony was the 7th cervical vertebra, but later work on this subject has shown that this is not correct. Most writers consider that anything below the level of the 3d or 4th dorsal is abnormal. We took the level of the 4th dorsal vertebra as the limit. In the children at Lymanhurst 73⅓ per cent gave a positive D'Espine's sign.

2. Interscapular dullness: This sign was present in 26⅔ per cent of this series. It consists of the presence of abnormal dullness on light percussion over the area between the scapulæ, and is simply an indication of enlarged hilus glands. This of course does not necessarily mean that they are tuberculous glands any more than a positive D'Espine's, but is simply an indication of their enlargement.

3. Faulty posture: Seventy per cent of these children had either poor or only fair posture. In the majority of cases it is simply an evidence of fatigue.

4. Glandular enlargement: Ninety-nine per cent of the children had enlarged cervical glands. The majority of these children have infected mouths and throats, and almost all of this adenopathy is due to this; 23⅓ per cent showed axillary gland enlargement, 23⅓ per cent enlargement of the epitrochlear glands, 3⅓ per cent enlargement of the inguinal glands, and 1⅓ per cent enlargement of the intercostal glands.

5. Thirty-five per cent had a flat or asthenic type of chest.

6. In 11⅔ per cent the veins of the chest were abnormally dilated.

7. Only 5 per cent of the children had subcrepitant râles, but we found slight dullness over one or both apices in 28⅓ per cent. In none of these cases was the dullness marked. In only 3⅓ per cent was bronchial breathing heard.

The von Pirquet test has been used on all of these children, and in all cases where it has been negative or at all doubtful it has been repeated several times. Ninety-five per cent of the cases gave a positive reaction. In other words, 3 of the children, who, from clinical history and physical and *x*-ray examination, were considered actively tuberculous, gave a negative von Pirquet. These reactions have varied from mild to extremely severe ones, but it is interesting to note that the severity of the reaction has not seemed to bear any particular relation to the condition of the child. In other words a severe von Pirquet reaction does not necessarily go with a child showing marked evidence of tuberculosis.

The *x*-ray study of these children has been of great value in determining the presence of tuberculosis. Although in many of the cases *x*-ray and physical findings agreed, nevertheless often a child having a definite *x*-ray picture of hilus gland or pulmonary involvement would show nothing on physical examination, and vice versa.

After studying this group of children one cannot but realize how impossible it is to make a diagnosis of active tuberculosis in children on the basis of clinic history, physical findings, tuberculin reaction, or *x*-ray alone. It is only when one studies the child, bearing in mind all of these factors, that one can arrive at any definite and accurate conclusion, and I might say that with all of these factors before you it is sometimes impossible to determine absolutely whether the condition is active or not. In such cases we have always given the child the benefit of the doubt and have treated it as active.

CONCLUSIONS

1. The most important clinical symptoms in this group of tuberculous children are malnutrition and a daily elevation of temperature.

2. A history of exposure is of great significance.

3. The most important physical findings are a positive D'Espine's sign, interscapular dullness, flatness of the chest, and slight apical dullness.

4. One must consider the clinical history, the physical findings, the *x*-ray, and the tuberculin reaction together in order accurately to diagnose active tuberculosis in children.

DISCUSSION

Dr. P. M. Hall (State Sanatorium): I want to express my appreciation of this splendid symposium given tonight and to emphasize a few points which interested me. The first is the difficulty reported in making a positive diagnosis of pulmonary tuberculosis in children. It depends on the constitutional symptoms. Secondly, I cannot quite agree with one essayist on the value of D'Espine's sign or on any of the physical signs. The history of the patient and the constitutional symptoms are our main reliance in making a diagnosis unless there is positive glandular or bone involvement.

When definite pulmonary lesions are present they are elicited by the same technic as in the case of the adult.

Dr. Robinson Bosworth (St. Paul): I am very glad to hear the chairman say that these papers will be published. They have been read so rapidly and there has been so many important data given us that it cannot be digested without time and study.

Several studies have been made of tuberculosis in children, and the phenomena which have been set forth as facts must be correlated, in order that we get the most out of them.

I am very much interested in the remarks of Dr. Allison, relative to the age of exposure to infection and the development of active tuberculosis as a result. Should it be true that fatal cases of tuberculosis do not develop following an infection by the tubercle bacilli for the first time after the age of four has been reached it would greatly simplify our antituberculosis campaign. This is not the first time that such a statement has been made. Colonel Bushnell, in his late work on the "Epidemiology of Tuberculosis," quotes a foreign author to the effect that he has never noted a fatal case of tuberculosis in an individual for the first time after the age of four. In a recent editorial in the London *Lancet*, another author is quoted to the effect that, in his opinion, 80 to 90 per cent of the fatal cases of tuberculosis are infected for the first time prior to the fourth year.

In order that we may get the greatest value out of these papers the data should be published and made available for study, and I hope that will be done.

Dr. H. Longstreet Taylor (St. Paul): I want to congratulate the physicians of Minneapolis on having a special institution for the study of tuberculosis in children. I do not believe its like exists anywhere in the United States. It is always a great pleasure to me when I see new things springing up in tuberculosis work in Minnesota.

The question of prognosis in very small children is one that I believe is being gradually unraveled. Some years ago Hess, in charge of the New York Preventorium, at Farmingdale, N. J., said he did not want any children under one year of age with positive von Pirquets because the prognosis was so grave. From our observation in Ramsey County it seems to us that the prognosis in these cases is not nearly so grave as has usually been supposed. In fact, if I am not greatly mistaken, our fatal cases in this class, that is, up to two years, have been only 20 per cent. None of these cases, however, belonged in the category of the adult type.

As to the amount of school work that these children in the preventorium are able to do, our experience has been very remarkable. Our children are only in the open-air schoolroom two hours a day, and it is not unusual for a child to do two years' work in one. Many of them, when they return to the public schools in St. Paul, have skipped a grade. They remember, too, what they have learned. All of our eighth grade students have passed the entrance examinations to High School and have done well there. The open-air school keeps its pupils always bright and alert, ready to accept each new idea and to store it away for future reference. It is too bad that the open-air schoolroom is not universal. I have never seen a properly ventilated schoolroom or one in which the pupil's mental processes were not dulled and inhibited by the poor air one is forced to breathe.

Dr. S. A. Slater (Worthington): Work in tuberculosis among children has always appealed to me. I feel that a great deal can be done in this field. Such work as is being done at Lymanhurst cannot be commended too highly, and such a program as that presented this evening from different angles will offer much food for thought and something of real value.

I am very glad these papers are to be printed, and I shall read them with a great deal of interest. It would be interesting if these men would present a program three or five years from now using the papers read tonight as the basis and revising the same, noting changes and improvements, with a summary of results taking place in the meantime.

Dr. E. S. Mariette (Oak Terrace): I think that Minneapolis is to be congratulated upon the co-operation shown by the various boards engaged in public health work. For instance, the Board of Education and the Health Department, on the one side, and the sanatorium or hospital authorities on the other.

The authorities of Washington, D. C., and the National Tuberculosis Association recently decided that the preventorium phase of the work belongs to the board of health and the school board. The care of the sick patient belongs to the sanatorium or hospital authorities. This is just what has been done in Minneapolis with Lymanhurst and the children's building at Glen Lake, and I hope that nothing will interfere with the continuation of the present arrangement, modified from time to time as conditions demand.

Incidentally, I may say that at Glen Lake we are to open within a short time a sixty-bed hospital, or sanatorium, for children ranging in age from birth to puberty, so that the tuberculous mother may leave her child there, and thus the child will escape further exposure to tuberculosis. This, I think, is a very important plan in our tuberculosis campaign.

I was very much interested in the emphasis laid on the question of secondary infection. Men in tuberculosis work too often are prone to neglect other things and think only of tuberculosis. Our plan at Glen Lake is to take the case as a whole, and when we find any foci of infection which would be removed, should that patient be free from tuberculosis, we remove them and think that in that way we have aided and hastened the recovery from tuberculosis. In other words, we believe that when there is a secondary infection and tuberculosis, and it is possible to get rid of the secondary infection as easily as in the case of infected teeth, tonsils, and accessory sinuses, it should be done.

I hope that this good work will continue because it is so worth while, and the entire staff at Lymanhurst are to be congratulated upon the large scope of their work.

Dr. A. T. Laird (Duluth): It has been a very great pleasure to listen to these papers, and I certainly want printed copies of the reports. I think we have learned a great deal by coming here tonight, and I think the city of Minneapolis fortunate, indeed, in having an open-air school for definitely tuberculous children where they can be watched carefully while going on with their studies.

A short time ago Dr. Conroy made a study of pulmonary cases admitted to our children's hospital at Nopeming. In this series of 280 tuberculous children, 86, or 30 per cent, were pulmonary cases. This is a higher percentage than is usually found among tuberculous children in cities, probably because they were among applicants for admission to a sanatorium.

Dr. S. Marx White (Minneapolis): It would be impossible to touch on even the major points brought out in this interesting study and stimulating presentation. I desire, instead, to call your attention to the tremendous value of this co-operative study by these men specially trained each in his own field and applying the knowledge and the methods of that field to a limited group of patients. The information secured could not have been gotten together by a single individual. I believe this is only a beginning of a very much more valuable and extended study of this special group. Let me call your attention to the fact that these children have not been damaged by this study. There is no so-called experimentation, and the children have been given the advantage of a study of each individual case that can scarcely be found anywhere else. At the same time the correlation of the studies advances our knowledge of the child, whether tuberculous or non-tuberculous yet physically under par. I have had the privilege of attending a meeting of this staff and seeing the work. The method of group or clinic study is a long step in advance. The study illustrates also what can be done when the public boards involved get together as have the Board of Public Welfare and the Board of Education, working in a field which touches both, but which neither alone could so satisfactorily cultivate.

Concerning the innumerable points brought out in the papers: I want to emphasize one only, already touched upon by Dr. Mariette, and that is the incidence of infections of mouth, nose, and throat in tuberculous children. Whether these infections actually play a very large part in the clinical course of the disease, or whether the existence of focal infection has a large part to play in the character of the tuberculous infection, we do not satisfactorily know, but it is a field in which careful studies should be made. Many years ago animal experiments were carried out on the relation of one infection to another. Rickets, as early as 1907, showed by animal experimentation that, in the presence of one infection, another infection which, when alone, had a definite and well-timed duration, could be very greatly accelerated by the existence of a previous infection. We have seen many illustrations of how a focal infection appears to have a deleterious effect on the conditions of the lungs in tuberculosis.

Here is a field which, when studied over a considerable period of time and with the volume and age of this group, ought to give us results of a clean-cut character, like an experiment, because the material is limited and the study is careful, painstaking, and scientific. This Society is to be congratulated on hearing one of the best expositions of any subject to which it has been my pleasure to listen.

Dr. H. L. Ulrich (Minneapolis): There is just one point I want to speak of. In looking over the report of the Ventilation Commission in New York City, I read that, as our ancestors were cliff-dwellers, we should naturally be cliff-dwellers and not dwellers in the open air. There is something in this idea. In this report it was shown that among students in the open-air schools and those in the old-fashioned schools there was no difference in morbidity, in weight gained or lost, or in mortality. But that does not gainsay anything about fresh air. The point is *personal supervision.* It is the wholesome food and intensive supervision that these students get that counts.

Another point I am sorry I did not hear, and that was the differential diagnosis between streptococcic infection and tuberculous infection in children.

Dr. Max Seham (Minneapolis): I want to emphasize what I think is a very fundamental point and one often entirely overlooked, namely, that early tuberculosis in children, from a clinical point of view, is practically always bronchial gland tuberculosis.

There is one condition that commonly is confused with bronchial gland tuberculosis and that is in the congenital asthenic type of child. These children often give symptoms which are in many respects like those found in tuberculosis. I think that is one of the conditions very often overlooked.

I also want to say a word about the D'Espine sign. I think that one should be very careful in the interpretation of this sign. About 1914, when it was first developed in this country, it was used as a diagnostic sign, but it is now considered only of relative importance because it is positive in so many conditions other than tuberculosis. We may find it in measles and any other acute infections which give us a tracheo-bronchial adenitis. Another thing about the D'Espine sign is that no standard as to what is normal for various ages has ever been scientifically established.

Dr. Walter Camp (Minneapolis): It has certainly been a pleasure to listen to this interesting symposium. I would like to ask Dr. Waldron what percentage of the tonsils removed showed tuberculosis microscopically? In our work as consultants to the Glen Lake Sanatorium for the Tuberculous we have found that about 70 per cent of the tonsils removed show tuberculosis. I would also like to inquire if he had any cases of tuberculous otitis media, and, if so, what treatment was employed?

Dr. Everett K. Geer (St. Paul): It has been my privilege to be visiting physician to the Children's Preventorium of Ramsey County for the past two and a half years and to observe a number of cases of tuberculosis in children. Our capacity is seventy children, and they are taken from homes where open tuberculosis exists. During the first six months I noticed many children who failed to gain in weight, in spite of careful dietetic hygienic treatment. On more careful examination we found that they had bad teeth or throat infection. On cleaning these up it was startling to see how they gained. It was so startling that I questioned whether the malnutrition was really due to tuberculosis or to these foci.

It has been of interest to me to see the large number of mouth and throat infections which Dr. Waldron has found, for it coincides with my experience at the Ramsey County Preventorium, and I shall be deeply interested to know the results of the treatment to be carried out at Lymanhurst on these throat and mouth infections.

Dr. Frank Bissell (Minneapolis): I confess that the diagnosis of tuberculosis in children has, in the past, become a confusing problem to me. I think that the confusion is due to an apparent difference between the pediatrician's conception of the disease and that derived from a stereoscopic study of *x*-ray plates.

I have contended for a long time that a Röntgen diagnosis could only be made in cases which showed a characteristic parenchymal lesion. Hence it is gratifying to me to hear Dr. Allison state that in all positive cases in his series peripheral changes are present. Certainly, one cannot base a diagnosis of tuberculosis in children upon Röntgen findings of bronchial gland enlargement alone.

On the other hand I would like to have one of the essayists, in closing, explain why, if peripheral changes do occur, they do not more frequently manifest themselves by auscultatory signs.

Another observation which bears a close relationship to the subject under discussion is this: cases of chronic cervical adenitis referred for *x*-ray therapy seem to divide themselves into two classes: (1) those which respond promptly to treatment, and (2) those which are more resistant thereto. Since the cases which respond most readily to treatment are those which show no Röntgen evidence of pulmonary tuberculosis, it has occurred to me that they may be due to a secondary infection (probably streptococcus) originating in the tonsils, and that favorable results are partly due to the effect of radiation upon the tonsil itself.

Dr. Soren P. Rees (Minneapolis): I presume the program committee had two things in mind when this program was arranged. One was to bring this type of work before us, and the other was to call our attention to Lymanhurst Hospital.

We as a profession should be interested in Lymanhurst. I was wondering how many had taken the time to go through the school and see and study some of the features of it.

I hope at a later meeting this same group of men may bring us their troubles, as well as their successes. In this connection I am reminded of the reply Mr. Armour made to a visitor when he was asked how he managed to supervise so large a business. He said, "I request that every mistake made and every kick received be brought to my personal attention."

If you do visit Lymanhurst you will at once see the difficulty. I think we all know that it was a white elephant on the hands of the Board of Public Welfare, illustrating again the fact that any gift which has a string attached to it often becomes a troublesome and expensive gift. The building was not built for or adapted to the use it is now being put to. Many features show that. The space is filled with partitions, small rooms, and heavy stone and cement construction unsuitable to so simple an experiment as a fresh-air school. The cots are so close that they almost touch each other. The sick especially should have more room, either in that building or perhaps in an entirely separate building.

While I commend everything said here to-night, I think the profession should know the institution and the work done there, and be prepared to made improvements for the future.

Dr. A. E. Benjamin (in the chair): I think we shall ask the same men to give us a clinic down there so that we can see their work and have them demonstrate what they have said here to-night.

Dr. F. H. Hacking (Minneapolis): I wonder if we realize the difference between the handling of these cases now and the old way. I remember when the children came to the dispensaries, sometimes three, four, five, or six at a time, nearly all of whom came from tuberculous families. At the one examination we had to do the von Pirquet and D'Espine tests, and, not finding much else, we had to decide whether they were or were not tuberculous, and what to do with them. There was only one thing to do generally, and that was to send them back home.

This emphasizes what Lymanhurst and Glen Lake are doing to take care of these children. Before that we had to just send them back into these infected homes, where they later became candidates for a general sanatorium at the ages of fourteen, sixteen, twenty or twenty-five years.

If it is true that most of the fatal cases are infected in the first three years, and if we can get them before the age of three and send them to Glen Lake so that they will not be exposed to tuberculosis, we are a long way toward solving the tuberculosis problem. These are the things that are solving the problem. The deathrate from tuberculosis was materially lessened last year.

Dr. F. E. Harrington (Minneapolis): Of course this question is only one of public health from my standpoint. Lymanhurst is only an experiment in Minneapolis, but I wish the profession to understand that Lymanhurst is Minneapolis' and the medical profession's institution. It is made possible and operated through the joint Board; of Health and Education.

We are not looking for children of school age who belong to any physician. It offers an opportunity for the child who is attending school and who may be a source of danger to other children.

Dr. Thomas Ziskin (Minneapolis): In closing, I simply want to reiterate what I said about the sign mentioned in my paper. There has been considerable discussion in regard to the D'Espine sign. The sign which I brought out is of greater value. That is the presence of a rough systolic murmur at the base of the heart. Whenever you hear that it should make you suspicious of bronchial gland enlargement. It does not mean that tuberculosis is present, but it should make you go into the question more thoroughly.

Dr. C. B. Wright (Minneapolis): The thing that struck me in my examination of these cases was the fact that in these children the function of the gastrointestinal tract was very good and corresponded very well to any similar number of practically normal children. This may have some bearing on the fact that they gain weight so rapidly, and respond so promptly to treatment during this age period.

In the University Dispensary we often find gastrointestinal disturbances, either functional or organic, in the tuberculous adult, and proper treatment of these conditions helps materially in their management.

In addition, I am constantly accumulating more data on the question of visceroptosis, which, as the series grows, I hope, will be of some real value.

In closing, allow me to say just a word of appreciation of Dr. Harrington, whose energy and enthusiasm have been an inspiration.

Dr. C. A. Stewart (Minneapolis): From our study of the lung capacity we find that it agrees very well with the normal lung capacity in children. However, the fact remains that if any of these children should develop lung tuberculosis it would impair the lung capacity, therefore properly repeated tests of lung capacity should enable us to detect any advancing tuberculosis.

Another point I wish to state is that I believe the age period should be raised to include children of high school age.

During this period of investigation, that is, from September to the holidays the average gain in weight was seven pounds. Also these children have shown normal growth in lung capacity. If, at any time, we find that the child is not gaining normally we should immediately suspect that something is going wrong and should confine him to bed.

Dr. E. D. Anderson (Minneapolis): I am very sorry that I gave the impression that we thought D'Espine's sign is diagnostic or that any one thing is pathognomonic. I intended to show that D'Espine's sign is not a sign of tuberculosis, but is a sign of glandular involvement. I think that all the men would agree with me that we cannot make a diagnosis of tuberculosis on any one thing, but must consider all the things together. In the cases where there was any question about it we gave the child the benefit of the doubt.

Dr. Carl W. Waldron (Minneapolis): I trust that in about six months' time I shall be able to answer Dr. Camp's questions concerning the incidence of tuberculous tonsillitis and tuberculous otitis media at Lymanhurst; however, to date my work there has been more in the nature of a survey with the idea that we shall immediately institute necessary treatment in order to clean up all infections of the mouth, nose, throat, and ears. When we find septic tonsils we either refer the case to the General Hospital or to a private physician for operative procedure.

We are trying to first clear up the mouth infections. Personally, I feel that our tonsils should not be called upon to defend us continually against our own mouths. For many years in most nose and throat dispensaries the tonsils were usually removed indiscriminately regardless of the condition of the mouth. The *mouth should be cleaned up first.* The presence of gingivitis or open alveolar abscesses should lead us to start, first of all, on the mouth. Then when we get the mouth in good condition we can go into the question of the tonsils.

Careful examinations will be carried out with reference to the ears. To date I have not determined what treatment will be carried out. A later report will be given covering all details of this work.

Dr. C. E. Nixon (Minneapolis): Many men working with tuberculosis have noted the accompanying nervous symptoms. There is a chronic bombardment of the nervous system in any chronic infection. These children showed more involvement of the mental and nervous systems than normal children, and this emphasizes the importance of the early treatment of tuberculosis.

Dr. J. A. Myers (Minneapolis); Probably our greatest opportunity is in the educational phase of this work. Every medical man on the staff has a desire to gain and contribute knowledge regarding tuberculosis in children. It has been observed to-night that many specialists are represented on this staff. Each specialist not only is adding to the knowledge in his own field, but also is learning much from the other specialists.

The library, which is now being developed, contains the best books on tuberculosis obtainable for physicians, nurses, teachers, and tuberculous children and their families. Since the Lymanhurst School has become a member of the National Tuberculosis Association our library contains the *American Review* of Tuberculosis, the *Journal of the Outdoor Life*, and all pamphlets and bulletins distributed by this Association. In this manner the latest and most authoritative information on tuberculosis is available to all workers.

It has been intimated to-night that difficulties arise at Lymanhurst. This is true. Difficulties loom before progressive workers in every field of endeavor, and it is only through the ability to surmount difficulties that individuals become truly progressive. I am firmly convinced, however, that no more difficulties exist at Lymanhurst than would be found to exist in a similar institution in any other city of our country. Furthermore the humanitarian, scientific, and co-operative spirit manifested by the men on this staff fully compensates for and solves most difficulties which arise in connection with the work among tuberculous school children in Minneapolis.

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THE LYMANHURST PUBLIC SCHOOL FOR TUBERCULOUS CHILDREN: A SYMPOSIUM

The group of twelve papers on the Lymanhurst Public School of Minneapolis for Tuberculous Children, which it is the privilege of THE JOURNAL-LANCET to publish in this issue, with some brief discussions, constitutes a valuable contribution to a subject of universal interest in and outside of the medical profession. Under the guidance of the presiding officer of the Hennepin County Medical Society, these papers, with their discussions, were presented in sixty-five minutes.

A few words of explanation are due the contributors and may add to the interest of the papers.

The Lymanhurst School is a Minneapolis public school for the education of grade pupils (that is, for pupils from the first to the eighth grade, both inclusive), who are demonstrably tuberculous and yet are able to do school work, but are not in a condition to justify sending them to the County (Glen Lake) or the State (Walker) Tuberculous Hospital. The City of Minneapolis is undertaking in Lymanhurst to give these pupils a regular public-school course in education and to restore them to health. In its twofold work, at least in some of its details, we believe the institution may be called unique.

In addition to the educational course, the pupils receive an unexcelled health training. They are given a hearty noon-day dinner, besides forenoon and afternoon lunches; and every pupil has a rest hour in bed, together with artificial light treatments or sunbaths. They are furnished, in the winter, "Eskimo" clothing to enable them to carry on their work in the open air, regardless of the state of the weather.

But there is another feature of this work which is of great and vital importance. Lymanhurst has a consulting medical staff composed of twenty specialists in the treatment of tuberculosis, every one of whom is a volunteer worker and at least some of whom have national reputations as experts in this line.

The Trudeau School, mentioned by several speakers, is a Minneapolis school for pupils physically below par, but in whom no positive tubercular lesion can be demonstrated.

As this symposium indicates, the staff has undertaken a campaign with great possibilities for usefulness to these pupils and the public. These papers are merely preliminary reports made at staff meetings where the work is planned and co-ordinated. They cover observations made within the past few months, from two to eight months; and yet they show the general scope of the work the staff is doing, and will continue to do, probably, for several years. They serve, admirably, we think, to show the possibilities of public work of this character to overcome one great scourge of the human race.

A QUESTION OF VERACITY

As the editor is not accustomed to making statements which cannot be verified, Dr. Smithies' letter to the editor, called forth by an editorial in our issue of April 15, is printed herewith without comment:

1002 N. Dearborn St., Chicago, Ill.,
April 25, 1922.

To the Editor,
THE JOURNAL-LANCET,
Minneapolis, Minn.

Dear Sir:

On page 206 of the current issue of your magazine, appears an item ("Editorial?") of which the attached is a true copy.

Although the American Congress on Internal Medicine needs no champion, such untrue statements as your Journal carries in its paragraph, as attached, should be corrected. Without paying any attention to the sarcastic (!) tone of your "editorial," let me point out the following misstatements of fact:

(1) I (Dr. Frank Smithies) do not even *know* who is editor of "THE JOURNAL-LANCET," therefore, the editor's visit to "an old acquaintance," is certainly stretching wide editorial prerogatives.

(2) I, as Secretary-General, never "urged" this visiting (?) editor to "sign up and receive a degree in the evening." Many men came to me at Minneapolis requesting application forms to The American Congress on Internal Medicine and to the American College of Physicians, on which they might list their educational, scientific and professional qualifications for survey by the Councilors; none were "urged to sign up" as stated by your visiting "editor," a fact which he well knows.

(3) Your "editor" is so poorly informed of the state of affairs that he does not know the difference between membership in the American Congress on Internal Medicine and the American College of Physicians—hence his reference to "initiation fee was $25.00, and, we think, this price was held out to prospective members 'til about 3:30 P. M. on Friday, et seq." reveals not only the type of his spleen, but his willingness to juggle half-truths in a deliberate attempt to belittle societies whose leadership and membership comprise such eminent men as James B. Anders, Charles Bass, Martin Rehfuss, Henry Plummer, John Lichty, S. Marx White, David Riesman, Alfred Scott Warthin, Russell Carman, Frederick Tice, Louis Hamburger, etc., etc.

(4) The five men "from Minneapolis" who were initiated were all men who had submitted their applications and their qualifications long before the Congress met at Rochester and Minneapolis. (Some of the applications had been pending as long as three years.)

(5) The increases in annual dues to the American Congress on Internal Medicine and the initial fee to the American College of Physicians were decided upon in open sessions of the Congress and College; the increase of dues to the Congress (the fee including subscription to one volume of "Annals of Medicine") was decided upon at Rochester; the increase in initial fee to the College was decided by vote of the Fellows at the Convocation, Hotel Radisson, 7:30 P. M., Friday, April 7th. It is thus quite possible that your slowly comprehending and poorly informed "editor" may have been told on Friday morning, April 7th, that until the general assemblage of Fellows decided otherwise (as it did Friday evening, April 7th), the initial fee to the College was $25.00. Furthermore, it is quite possible that your "editor" was courteously received, along with many other men who clamored for application blanks, and was told that no applications could be received later than 3:30 Friday afternoon.

(6) If you do not see fit to print this correction of your editorial in an early issue of "THE JOURNAL-LANCET," The American Congress on Internal Medicine and the American College of Physicians will take other means to correctly inform your readers and the medical press of this country and Canada of the true facts in this matter.

Trusting that such drastic measures will be not necessary, I am

Sincerely,

FRANK SMITHIES, M.D.
Secretary-General.

Copied from THE JOURNAL-LANCET, page 206.

MEMBERSHIP IN THE CONGRESS ON INTERNAL MEDICINE

The meeting of the Congress on Internal Medicine in Minneapolis, and also in Rochester, was very successful, and the visitors were given clinics at the University Hospital and other hospitals by good clinicians; and, so far as we can learn, the society was very much pleased with their reception both in Rochester and in Minneapolis. The Congress is attempting to increase its membership, and will expect ultimately to become an organization that will be worth while in this country. At the present time, the men who apply for membership must be high-grade men. When the editor went down to see an old acquaintance in Dr. Frank Smithies, he was urged to sign up and receive a degree in the evening. But, somehow, something went wrong. The original initiation fee was twenty-five dollars, and, we think, this price was held out to prospective members until about 3:30 P. M. on Friday. But the blank that the editor received stated that the initiation fee was one hundred dollars, and who ever heard of an editor who had a hundred dollars to pay for such a luxury? Some may have, but not here. Five men from Minneapolis were initiated into membership in the Congress, showing that someone had money, faith, and a desire to join the organization; but a few others in Minneapolis did not.

DUPLICATION OF MEDICAL SOCIETIES

Then tendency of modern progress is to duplicate, or copy, or form a counterpart of almost everything that is already in force. Perhaps that is the reason why the old epigram was promulgated, namely, "There is nothing new under the sun." Yet we all, in our scientific efforts to increase our efficiency, consciously or unconsciously copy the efforts of others. And when the *last* word has been said, it is found on investigation that it was said long ago. This, however, should not be discouraging, because often in modern medicine the old ideas may be carried to such an extreme that they become fossilized; and many of the new ideas in medicine have attained such prestige that they form a basis for still other ideas or methods based on what, for a time, may be accepted as final. There is no question but that medicine has advanced and progressed appreciably above all other professional efforts;

surgery, and in fact all departments of medicine, including all of the new things known to those who specialize in medicine, must be constantly kept in mind.

This leads only to a discussion on the advisability of multiplying our medical organizations. Whether they really accomplish the results they expect or whether they simply duplicate the work of other organizations similar in type is the question. It is not unusual to hear physicians and surgeons complain that they feel obliged to join too many organizations in order to keep in touch with their fellow-men and that the matter of expense is quite a serious consideration. Then, too, the man who is unable financially to keep in touch with everything that is scientifically modern is unconsciously pushed into the background by his critics, at least to a certain degree. He is unable to subscribe for the numerous medical journals that are printed and particularly those of a highly specialized and research type.

The American Congress of Physicians and Surgeons, which just met in Washington, is composed of many constituent societies; and the Washington meeting, which occurs once in three years, brings all these societies together so that there may be an interchange of ideas and new methods of treatment; and it is called the American Congress of Physicians and Surgeons. At the present time fourteen constituent societies make up the Congress. In the years between the Washington meetings each constituent society meets at some place fixed by its councilors. Whether the place for such meeting is sufficiently near the place of the meeting of the A. M. A. is not always fully considered. It is rather a hardship on a good many men who would like to attend their own constituent societies to find that they meet twenty or thirty days either before or after the meeting of the American Medical Association. They do not feel they can afford either the time or the expense, and yet the benefits they reap from these meetings,—the association with their fellow-men, not necessarily the papers read, but the contact and the talking of "shop" with their confrères,—are too valuable to be lost.

The first definite grand division of physicians and surgeons came with the organization of the American College of Surgeons. Perhaps in its first meetings some men were admitted who were unwilling or unable to live up to the standards that now surround the admission of new members; but membership in the College was an honor, and every surgeon felt that he should be a candidate or a member. The result was that in all large cities and medical-school centers, there was appointed a man to act as censor of the applicants from his district. This naturally led to some personal animosity, and very often good men who should belong to the organization were kept from it because of the objection of this one man. Then, too, the organization began a tremendous fusillade of censorship, of restriction, and of other activities which were good for the organization, but which naturally met with criticism from various quarters. However, they succeeded in standardizing many hospitals which had been on a haphazard basis and suggested other much needed reforms. At the same time these newer ideas in medicine and surgery were advancing so rapidly that they found it necessary to organize further special societies in order to carry on the work of idealists or men who had promulgated new ideas that were designed to help their fellow-men. More recently there was organized as a "fellow organization," one might say, the American College of Physicians, which is made up of selected men, most of whom belong to the American Congress on Internal Medicine. And the design of this new organization was to duplicate, as far as possible, the work of the American College of Surgery, except that it applies to medicine. The installation and inauguration of these two societies adds two more to the list of constituent organizations. The membership of the American College of Physicians is intended to be of the highest possible order and eventually to form a nucleus for the teachers in medical schools and doubtless to set their standards for them.

It is questionable whether all these organizations are of real benefit to the country at large, for it is impossible sometimes to keep in close enough touch with these various societies without submitting one's self to grave disappointments and discouragements. None but the most active of promoters can keep the pace they have set for themselves and expect others to follow in the same line of work and in their footsteps. Thus there comes a redundancy of societies, and incidentally the redundancy is extended into the papers written for all special organizations. It means that more words are needed to express one's meaning. There enters into it, too, a tautology, a needless or useless repetition of the same idea in different words. Then, too, there is the term "pleonasm," which denotes the use of words whose omisison would leave one's meaning intact. And under heat and excitement, many of us become verbose and thus too pervasive to remedy our verbosity by excision. We finally get to a point where we utter nothing but words. For instance, a man who will read a medical paper that is two or two and a half hours in length, on some technical subject, can be safely accused of verbiage and prolixity, which implies an excessive and wearisome attention to trivial particulars. The man who is diffusive in his statements should study the man who is concise, and the use of any form of circumlocution denotes an indirect way of saying a thing. All this might be applied to many of these newer organizations. What are they going to accomplish? Are they not indicted by the general term *redundancy?*

THE MEETING OF THE AMERICAN CONGRESS OF PHYSICIANS AND SURGEONS

This meeting, held at Washington this month, proved to be a very successful one from the point of attendance; and from the point of papers presented it was especially good. It was very gratifying to be able to see one's friends from all parts of the country assembled in Washington. Quite naturally the larger number of those in attendance were from the Eastern states, but a scattering number were from the Middle West and the Far West. There were at least twelve men from Minneapolis—probably more, for it was impossible for one to meet all of one's acquaintances at such a diversity of constituent societies.

The editor, who attended the session of the American Neurological Association, naturally found his attention drawn to it more than to the other Sections. One special feature that showed the bringing together of men of this specialty was a meeting of the Otological Section in which a few neurologists were invited to participate, showing that both Sections felt the necessity of getting together on neuro-otological problems. Then, too, it is well-known that there is a society in the East made up of neurosurgeons. Its center seems to lie in New York, but evidently its occasional meetings are of the most profound interest and probably advance the knowledge of both organizations.

In the Neurological Section we listened with great enthusiasm to Dr. Walter E. Dandy, of Baltimore, who read a paper on the infiltration of the brain ventricles with either air or fluid, or the withdrawal of fluid in the ventricles and the substitution of air; then, taking an *x*-ray of the head, and discovering a hitherto undiagnosed brain tumor. Dr. Dandy presented his subject in a very concise and scientific manner, and he became immediately the subject of attack, not only from the neurosurgeons but from neurologists. They doubted the possibility or the safety or the necessity, even, of making a diagnosis under these circumstances. The neurologist feared the extreme danger that might occur in these concealed brain tumors which he could not locate or localize by this method; but Dr. Dandy explained that his death-rate was extremely low, —something like three out of one hundred operations.

In spite of all the discussion,—and there was a great deal of it,—Dr. Dandy held his ground, and it was finally decided that all the members would study the situation for a year and then compare their findings.

Another very warm discussion was on mental hygiene, based on the paper read by Dr. Stewart Paton, of Princeton, N. J., a man who always knows what he is talking about. Some heartily agreed with Dr. Paton, while others said that mental hygiene, as he had hoped might be practiced, was almost entirely out of the question, if not impossible. However, a committee was appointed to investigate the subject and report next year. In the meantime, it is to be hoped that all men,—neurologists, internists, obstetricians, and educators,—will get together and build a foundation of some sort upon which mental hygiene may eventually rest.

Washington is certainly a good host. They gave us everything we wanted in the way of rooms for meetings. They did not, however, turn over the keys of the city to us, but they made us welcome by inference. The Postmaster-General, Dr. Hubert Work, presides over the floor space of a very large building, but he looks just the same as he did when he was a neurologist in Pueblo, Colorado. He has the same good sense and judgment, and he knows how to meet people. He is evidently a man of business. The Postoffice Department will not suffer in the delivery of its letters through any negligence on the part of Dr. Work.

NEWS ITEMS

Dr. J. H. Wells, of Cadillac, Mich., has located at Rosemount.

Dr. R. S. Forbes, of Duluth, is in New York City doing postgraduate work.

Dr. J. C. Rothenberg, of Springfield, will be a candidate for the state legislature.

The people of Wadena are discussing the matter of a suitable hospital for that city.

Dr. Nels Westby, of Madison, was elected mayor of that city at the election held last month.

Dr. C. D. Powell, of Valier, Mont., was married last month to Mrs. Olivia B. Fradt, of Casper, Wyoming.

The Medical School of the University of Minnesota will establish a department of preventive medicine and public health.

Dr. W. P. Freligh, who recently finished a three and a half year course of study at the Mayo Clinic, has located in Albert Lea.

The citizens of Canova, S. D., are planning to build a community hospital in order to obtain a physician or two for that place.

Dr. Clayton K. Williams, of St. Paul, has gone to Europe for postgraduate work. He will spend a year in Munich, Zurich, and London.

Dr. George E. Putney, of Paynesville, was elected vice-president of the Minnesota State Board of Medical Examiners last month.

The efforts to raise money for a community hospital at Moose Lake have been entirely successful, and work on the building will soon begin.

Dr. J. R. Sturre was elected mayor of Watkins at the city election last week by a unanimous vote. All doctors are evidently not discredited by all laymen.

Dr. Charles T. Miller, of St. Paul, died last month at the age of 67. Dr. Miller came to St. Paul forty-two years ago, and practiced there up to the time of his death.

Dr. C. T. Olson has moved from Lidgerwood, N. D., to Wyndmere, N. D. Dr. Olson is a graduate of Rush, and has specialized in eye, ear, nose and throat work.

At the end of the first year's work of the hospital conducted at Faulkton, S. D., by Faulkton County, a deficit of $500 faced the County Commissioners. The hospital will be continued.

Dr. H. T. McGuigan, of Red Wing, accompanied by his wife, has gone to Europe. After the usual sight-seeing trips, Dr. McGuigan will visit the surgical clinics for postgraduate work.

Dr. W. A. Jones, the editor, and a number of Minneapolis and St. Paul doctors, attended the meeting of the American Congress of Physicians and Surgeons in Washington, D. C., last week.

Dr. Mabel S. Ulrich, of Minneapolis, has been elected full-time secretary of the Hennepin County Public Health Association. Dr. Ulrich's first work will be to unify the county health activities.

Word has been received that Dr. Fuchs, of Vienna, who will arrive in the Twin Cities on May 29, to give a series of lectures on the "Pathology of the Eye," will be able to extend his stay from one week, as previously announced, to two weeks.

Dr. Charles E. Proshek, of New Prague, has returned from Europe, where he spent three years in American Red Cross work in Russia, Poland, Greece and Montenegro. He was married in Prague just before starting for America. Dr. Proshek graduated from the medical school of the University of Minnesota with the class of '17.

The Mayo Clinic has extended an invitation to the members of the American Proctologic Society to visit the Clinic on May 19 and 20, on their way to the St. Louis meeting. Many members are expected to accept the cordial invitation.

The St. James Hospital and Sanitarium, of St. James, formerly conducted by Dr. W. H. Rowe, of that city, has been sold to the Franciscan Sisters of Rochester. The building will be remodeled and a school for training nurses will be established.

The St. Paul *Pioneer Press* of Sunday, May 7, devotes an almost entire eight-page section to the description of the new Surgical Pavilion of St. Mary's Hospital at Rochester, just completed at a cost of over $2,000,000. Over thirty illustrations add to the interest of the descriptive matter. There is probably not a hospital building in the world that excels this building in completeness of equipment. It will long be a model for modern hospital construction.

The Minneapolis Surgical Society has been recently organized with a charter membership of twenty-four surgeons. The conduct will be in the hands of a council of five. Only general surgeons who have fulfilled the minimum requirements of the American College of Surgeons and who live in Minneapolis are eligible to membership. The first meeing was held on April 17 in the Minneapolis General Hospital under the following officers: R. C. Webb, President; Stanley R. Maxeiner, Vice-president; A. A. Zierold, Secretary-Treasurer.

PROGRAM OF THE ANNUAL MEETING OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION TO BE HELD AT JAMESTOWN, NORTH DAKOTA, JUNE 1 AND 2, 1922.

THURSDAY 9:00 A. M.

President's Address—
H. E. French, M.D.....................University

1. Operative Treatment of Chronic Mastoiditis—
John A. Pratt, M.D............Minneapolis, Minn.
Discussion opened by John H. Rindlaub, M.D.
....Fargo
2. Some remarks Regarding the Operative Treatment of Cancer of the Stomach—
Aug. Eggers, M.D....................Grand Forks
Discussion opened by Wm. H. Witherstine, M.D.
...................................Grand Forks
3. A General Practitioner's Synopsis of Syphilis—
John Crawford, M.D..............New Rockford
Discussion opened by F. R. Smyth, M.D.......
.... Bismarck
4. The Endocrines in Neurology and Psychiatry—
W. M. Hotchkiss, M.D.......................Fargo
Discussion opened by W. C. Nichols, M.D.....
.... Fargo

THURSDAY 1:30 P. M.

5. The Most Important Measures in the Protection of Children Against Tuberculosis—
Walter R. Ramsey, M.D............St. Paul, Minn.
Discussion opened by L. G. La Mont, M.D.....
.... Dunseith
6. The Closed Treatment of Empyema—
Fred Ewing, M.D........................Kenmare
Discussion opened by Kent E. Darrow, M.D...
.... Fargo
7. Aerocele of the Brain, with report of case—
Archibald D. McCannel, M.D................Minot
Discussion opened by H. W. Miller, M.D..Casselton
8. Traumatic Surgery and Compensation—
A. W. Ide, M.D....................St. Paul, Minn.
Discussion opened by Geo. M. Williamson, M.D.
.... Grand Forks
9. Referred Pain from Affections of the Thoracic Viscera—
Floyd O. Woodward, M.D............Jamestown
Discussion opened by Paul H. Rowe, M.D.......
.... Minneapolis, Minn.
10. Gas Cysts of the Abdomen—
John E. Engstad, M.D................Grand Forks
Discussion opened by Jesse E. Bowen, M.D.....
.... Dickinson
11. Heart Disease; Its Early Recognition—
Hugo O. Altnow, M.D....................Mandan
Discussion opened by W. H. Bodenstab, M.D...
.... Bismarck

FRIDAY 9:00 A. M.

12. The Irritable Colon—
Paul H. Rowe, M.D...........Minneapolis, Minn.
Discussion opened by J. O. Arnson, M.D.......
.... Bismarck
13. The Treatment of Club-Foot, Congenital and Acquired—
Emil S. Geist, M.D...........Minneapolis, Minn.
Discussion opened by Cyrus N. Callander, M.D.
.... Fargo
14. Earache—
Carl C. Cowin, M.D....................Jamestown
Discussion opened by C. E. Spicer, M.D.......
....Valley City
15. Coloptosis—
E. P. Quain, M.D.......................Bismarck
Discussion opened by A. W. MacDonald, M.D...
....Valley City
16. Acute Intestinal Obstruction—
Paul H. Burton, M D.......................Fargo
Discussion opened by W. H. Sihler, M.D.......
.... Devils Lake
17. The Responsibilities of the Obstetrician—
Albert M. Brandt, M.D..................Bismarck
Discussion opened by George B. Ribble, M.D...
.... LaMoure

POSITION WANTED BY HIGH-GRADE X-RAY TECHNICIAN

Has worked for some of the best physicians in Minneapolis, mainly in doing plate work, but has given treatments. Her work was pronounced among the best exhibited by physicians at the recent Minneapolis Clinic Week. Can give the best of references. Will go to any part of the Northwest. Address 244, care of this office.

FINE LOCATION IN MINNEAPOLIS FOR PHYSICIAN

A dentist wants a physician to share his office with him. Rent low. Location excellent for a new physician. Near a high school; neighborhood not overstocked with physicians, and residents practically all own their homes. About a mile to nearest physician's office. Address 243, care of this office.

BOOKS, INSTRUMENTS, ETC., FOR SALE

Medical books, instruments, and an instrument cabinet, operating chair (McDonald), Oliver typewriter, for doctor or druggist, and lots of other things. Write for particulars. Mrs. G. Oppliger, 407 German St., New Ulm, Minn.

PART OF MINNEAPOLIS OFFICE FOR RENT

A physician's consultation room, operating room, laboratory, dark room, joint reception room, Physicians & Surgeons Building, completely equipped, if desired. Leaving city to take government position, Washington, D. C. Inquire of C. J. Eisler, 731 Metropolitan Bank Building, Minneapolis. Very reasonable rent.

UNOPPOSED PRACTICE FOR SALE

In a town of 500 in Southern Minnesota. Collections good; roads good; will sell practice and office equipment for the price of the equipment. Reason for selling, going to specialize. Address 241, care of this office.

LOCATION WANTED

A physician wishes to learn of a good opening within 50 or 60 miles of the Twin Cities. Would prefer a town near a lake, with high school, churches, and lodges. Graduate of the University of Minnesota. Many years' experience in general practice. Ex-service man. Married. Speaks the Scandinavain and German languages. Address 242, care of this office.

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A SYMPOSIUM ON THE MEDICAL PROFESSION AND ITS RELATION TO THE PRESS AND THE PUBLIC*

W. A. Jones, M.D.	Winthrop Chamberlain
Rev. Phillips E. Osgood

THE DOCTOR, THE PUBLIC, AND THE PRESS

By W. A. Jones, M.D.

MINNEAPOLIS

The physician is one who practises, or is skilled in, the art of healing and in methods of preserving and promoting health, especially one who prescribes remedies for disease; specifically one who is legally authorized to practise medicine. In the United States physicians qualify by compliance with state requirements. State examinations for ascertaining the fitness of candidates for this calling are now generally held, and to those who successfully pass them license to practise is granted. Usually a physician is not bound to attend any person who may call him, but having undertaken to treat a patient he is liable to the penalties of malpractice in case of injury resulting from his own incompetence or neglect. As between physician and patient, relations are privileged and confidential, and a patient's secrets in the keeping of a physician are inviolable, the State not even requiring them to be made known in legal procedures.

The present-day physician, then, under this broad definition, must be a man trained in a class-A medical school in order to attain high standing. His education, therefore, must be broad not only in medicine but in every art pertaining to medicine. He is required to serve in the academic department of a university two years, in a medical school four years, and as an interne in a hospital one year, making in all a seven-year course of instruction before he is deemed qualified to take care of the sick. This is quite in contrast with the requirements of the various cults in medicine which generally vary from a few weeks to not more than two years of preparation. Such cults are Christian Science, Osteopathy (which requires a longer period of instruction), and Chiropractic (requiring the minimum amount of training). Yet all are permitted in some states, with or without license, to practise the healing art.

The public knows but little of the difference between these various professions, if they may be so termed,—the medical profession with its fundamental requirements and the cults or sects that practise the healing art. Contrast, if you will, the type of men who enter the medical school and the type of men who are instructed in these various by-paths. Consider the time, the character, and the type of instruction. The public should then see why there is an advantage on the part of the physician over those who are not receiving the same fundamental course of instruction. Then, too, the people have been misled because the physician has not been able to instruct them as to the character of the work that he undertakes. To illustrate a point which is much misunderstood: The term *infection* as the cause of disease has been a topic for scientific study for the last few years. This has been brought out by the laboratory workers who have been able to differentiate between many factors which operate as causes of conditions or disorders that ultimately lead to pathological disorders or destruction. In these scientific methods employed in the search for and the diagnosis of disease, the regular medicine certainly has the advantage over all other orders of healing. Science, too, has taught us the multiplied methods of diagnosis, the study of the individual, and the history of his disease, whatever it may be; and these methods of diagnosis, which are now termed *scientific*, certainly are far more convincing than the method of a cult which has "one idea" first and prominent in mind.

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*Presented before the Hennepin County Medical Society, April 3, 1922.

The average man who takes up the study of medicine does so for the sole purpose of treating and relieving suffering; and the majority of medical men do not consider sufficiently, in all probability, the commercial side of medicine. The small percentage of men who take up the study of medicine from a commercial point of view are usually failures in that they find themselves soon classed among the advertisers and are soon impelled to make rash promises in the healing of diseases that they cannot fulfill; hence they drift more and more toward commercialism, charlatanry, and quackery. The larger percentage, however, are endeavoring conscientiously to acquire knowledge and experience which will give them an opportunity to carry out their life work. Many of them are fitted for general medicine, but, unfortunately, many of them are not fitted for the business side, which should be a part of their medical instruction; they obtain only a small clientele and an unremunerative practice, and yet they go on for sheer love of their profession. It was stated by Dr. Frederick R. Green, at the Public Health Institute held in Minneapolis two weeks ago, that there are approximately four million sick people in the United States to be cared for by one hundred fifty thousand physicians, and that out of the one hundred fifty thousand physicians approximately three-fourths receive compensation for their service; the rest are engaged in charitable or semi-charitable work in the care of the sick,—and they may receive a small salary or none whatever. The public do not understand that physicians serve without pay on the staffs of city hospitals, university hospitals, and other public hospitals except when they send in their own private patients to these hospitals. The people think that their salaries, if any, are paid by the city. This explains in a measure why one-fourth of the one hundred fifty thousand men in practice are not compensated for their service. Neither are they given recognition for the number of years they put in study or in poorly paid practice before they can demand larger fees. This cannot be said of anyone in the by-paths of the healing art. The cults and sects in medicine practise from the beginning and to the end for compensation. They not only demand but receive it, and in most instances they demand payment in advance. Not so with the regular doctor. He is easy, he is influenced by his sentiment to relieve the sick, and he is interested in the end-result,—the recovery of the patient, not so much in his compensation. We should be more businesslike in our attitude toward our patients. We should see that we are compensated according to the ability of the patient to pay. Every patient feels better if, in some way, he can reimburse the doctor, even though the bill be a modest one, for this takes the patient out of the field of charity and puts him into a paying group, where he and the doctor maintain their respect for one another.

The public has just cause for complaint against the medical profession for the reason that the doctor has held himself aloof. He has sometimes failed to instruct the patient properly; sometimes he has failed in his diagnosis; and sometimes he has failed to give real service for his compensation. Added to this is his indifference about his business methods, all of which is too well known and of which advantage is taken. The public soon learn to hold him in disrespect, and, if he fails to relieve the sufferings or cure the disease, he is, in their judgment, a disqualified man.

Then, too, the doctor is so surrounded and handicapped by his old ethical problems and his secretiveness in medicine that he hesitates and fails to give the people publicly the benefit of his experience. Here the doctor is again at serious fault, for the public are constantly demanding that they be informed more than they have been. They are ready and eager to receive instruction in the care of themselves, but because this comes through the various "boards" that are associated in the care of the sick and, strictly speaking, nonmedical boards, they doubt the reliability of the information they secure. Consequently, it is time for the doctor to enter into an alliance with the press to inform the public of the advances made in medicine. It is not his duty, and it is beneath his dignity, to condemn all other methods of treatment except that of which he knows or advocates, such as psychotherapy, suggestion, and massage. No profession in the world has progressed as has the medical profession in the past twenty-five or fifty years. Many discoveries have been made which are helpful in diagnosis and treatment. The people are better understood and classified by methods of investigation, history-taking, and analysis, all of which has been, at times, heralded in the public press.

The physician considers the mental status of patients, knowing well that certain states of mind may imitate or mimic almost any well-known pathological disorder. And if he falls down on his diagnosis here, the man who practises sectarian healing may outwit him by making a mental impression on the patient and the patient apparently improves under an unscientific and untrained healer. But this is not to the discredit of the physician, for while the average medical man has a number of failures, his cures are far more numerous than the cures of the man who belongs to a cult or sect. When a medical man fails in his efforts, his failure is proclaimed aloud. But his "cures," or his patients who get well through the efforts of the physician, are not advertised; neither does his success always receive proper proclamation. The man of the cult who practises the "one idea" method advertises his successes, but says nothing of his failures. Because physicians are forbidden by their code of ethics to personally advertise as individuals, they have been condemned by the press as oversensitive and unwilling to give information that is of interest to the general public. The condition now existing, therefore, is that every medical society, fathered by the state association and participated in by the district or county society, should have within its organization a publicity committee so that all information given to the press may be sanctioned by the society. In that way the public may get some real benefits from the knowledge that has been gained by the physician only after many years of experience. It is on account of the lack of ethics or handicaps that the cults are permitted to advertise openly publicly, and with their names signed to their full-page advertisements. This is a point which the medical society should copy in this respect. They should prepare for the press articles which pertain to the public health, to the prevention of sickness, and such information as will guard the people; whereas the advertiser who comes out over his own name and makes promises which the physician knows he cannot fulfill is defrauding the public, is exposing his own disqualifications, and is not considering in any sense his associates. Therein lies another reason why the doctor should not personally advertise his methods and his opinions. In doing so, the lesser lights in medicine or the men of lesser experience, or the men who are really disqualified to give an opinion upon an important topic, are either sensitive, incensed, or jealous of their seemingly more favored brothers. This is not the true spirit of harmony that should exist among medical men. It is fair to say that the factional differences among physicians in large cities have practically disappeared, and, although they may growl and spit at one another, they are essentially brothers in spirit and in their endeavors to do good. The medical man who is in his ascendancy, who has, perhaps, reached the peak of his efficiency, is the man who has worked faithfully and conscientiously and given the best of himself to the care of his patients. He is methodical in his investigations, he is of an investigating turn of mind, and, above all, he has what is absolutely essential in the management or treatment of a case, good judgment. That cannot be too strongly emphasized. For instance, it is said that the surgeon operates unnecessarily too many times. That may be true in a few instances, and of a few surgeons. But the real man, the real surgeon, can judge by his reasoning and his experience when a patient should be operated on and when he should not be operated on. The same comment applies to the man in general medicine and to the specialist. The real medical man will do what is necessary, and when it is necessary, in his good judgment, for the welfare of the patient. If the public and the press were told how many people who consult physicians were either saved from operations or from unnecessary medication and medical treatment, they would disbelieve the statement. To this end the writer believes that the public should be taken more and more into our confidence; that more medical information should be given to the people through the press; and that there should be a close and yet an ethical co-operation between these two agencies,—the physician and the press. The press should at least respect the views of the qualified physician. That they are willing to publish what is fathered by a society is already known. The press should also ask for information as to the truth or the scientific value of many statements which are published merely from a sensational point of view, and the publicity committees, if such there be, should write out for the press the necessary facts and let the journalist put the matter in his journalistic phrasing. Without fear of much contradiction the statement may be made that the State Medical Association and the Hennepin County Medical Society (the largest of its kind between Chicago and San Francisco) and all other medical societies in the state are willing to endorse such information as has been proved scientifically valuable to the public through the press.

It has been suggested that the University medical faculty enlarge its corps of teachers, and, further, in order to give everyone fair play and all of its students the same fundamental training, provide chairs which cover all of the methods and policies of sectarian medicine. This would be an endeavor to forestall the disqualified, to keep the public and the student informed as to the new advances made in any branch of medicine, and to put all engaged in the healing art on a substantial and a scientific basis.

THE RELATION OF THE PRESS TO THE PROFESSION

By Winthrop Chamberlain
Chief Editorial Writer of the Minneapolis Journal
MINNEAPOLIS

The conundrum that has been propounded to me by your committee, as I understand it, is this: "What is the relation of the Press to the Medical Profession?" At first blush that looks like an easy conundrum. One is tempted to give the obvious answer—"friendly." But I suppose that with this, as with most conundrums, there is a catch in it somewhere, and so it is best not to be too hasty. Let us, therefore, look into the matter a little.

The relation of the Press to the Profession suggests the saying of a recent cynic — "God gives us our relations; thank God, we can choose our friends!" Yet the relation which we are discussing is not exactly God-given. It is, on the contrary, an intensely human proposition. It is the relation between two great modern institutions, two great factors in life—yes, one of them also sometimes unfortunately a factor in death. In order to assess their true relation it will be useful to inquire what their functions and purposes are.

The function of the newspaper is to gather and publish the news. That may sound trite, but, after all, it isn't so easy to say what the news is precisely. There are differences of opinion about that. What is news to one man, may be old stuff to another. What is news in Timbuctu, may be of no interest in Minneapolis. It is the task of the newspaper to gather and publish the news in which its readers will find greatest interest. Primarily, its success as a newspaper depends on how successfully it performs that task. Its editors and reporters are supposed to be specially skilled in knowing news when they see it, in knowing where to look for it, in knowing how to handle it, in knowing when to print it and when not to.

There are other functions of the newspaper that grow out of its central and great purpose in life. It has come to be a great medium for the exchange of information between buyer and seller. From the discharge of this function are derived the profits that make newspapers sound business propositions. Advertising has become a great social and economic factor. It makes great newspapers possible. It enables you to get the news of the world every day at a price that is less than nominal. It supports the great news gathering associations—those wonderful organizations that thrust their inquiring antennæ into the farthest corners of the earth.

The modern newspaper, in fact, rests securely upon a tripod; one leg is the news, the second leg is circulation, and the third is advertising. Without any one of the three it falls; with them all it is sound and stable.

Well, then, what about the function of the Medical Profession? In such a gathering as this a mere layman may well hesitate to attempt an answer. Yet it may safely be said that the Profession seeks the preservation and prolongation of human life. It has long since reached a higher plane than that represented by a purpose to cure or alleviate sickness: it aims at the prevention of sickness and the maintenance of health; it seeks to penetrate the secret causes of the mysterious maladies that afflict mankind, and so to come at the means of combating them and even of vanquishing them entirely. A very ancient and noble profession it is, but in its modern militant phase, as a gallant St. George faring forth to kill the dragon of disease, it transcends in nobility any profession—save perhaps that of my reverend friend who is to follow me.

Now, having atempted to define the functions of the two, the Press and the Profession, we come to the question of their proper relation. Since both are engaged in laudable and useful enterprise, and since neither sets before itself a goal that interferes with the goal of the other, there would seem to be no good reason why the relation between them should not be friendly and co-operative. It would even seem that the two might be mutually helpful to the great advantaging of both, and of the social system which they both serve, and in which both are such vitally important factors.

Is there an obstacle in the path that leads to perfect understanding and helpful co-operation between the two? Let us frankly admit that there is such an obstacle, and that its name is *Ethics*.

Now Ethics is an impressive word. It stands for a notion that is fundamentally sound and intrinsically noble. I shall not undertake to define it in this gathering, leaving that delicate task for those of you better fitted for it. But the particular phase of Ethics with which we are concerned tonight is that which has to do with advertising. It is unethical to advertise. That principle sometimes makes the relation of the physician and the newspaper difficult. The difficulty is this: The newspaper, in discharging its function of purveying the news, must take frequent note of the achievements of science, the progress of the war on disease, and matters of that kind. But that often involves the names and the claims of medical men. The moment the name of a physician appears in print in a professional connection, that moment is raised the question of ethics. Is there a subtle advertisement concealed in the publication, an advertisement which perhaps the crafty practitioner has procured with the connivance or the complaisance of the editor?

A suspicion of this sort calls for investigation and possible discipline—for the lofty ideals of the Profession must be preserved, lest it otherwise fall into an abasing mercenariness.

Now, this has two reactions. First, it operates to close the mouths of medical men too tightly. They become so fearful of committing an ethical sin unwittingly, that they take refuge in a reticence that repels all efforts of the press to seek even legitimate news. The other reaction is on the Press, which finds itself stimulated to greater effort to chase the news of medical scientific progress to its lair, by the very fact that it is hard to get.

Can you think of any good reason why such news should not be given to the world? I can not. But it is sometimes urged that it should be made public in the technical periodicals, where it will be stated with exactitude and without sensationalism. The only trouble with that expedient is that no one but members of the Profession reads such publications, and that no one could understand them if he did.

There is, in fact, great need for the popularization of medical science, for the education of the public in hygiene and the prevention of disease. The achievements of the Profession, its discoveries and inventions, the fruits of its research and its sacrifices, not only are matters of legitimate news, but are means for the education of the public. The Press is the chief, if not the only, medium through which the layman may keep up with the progress of medical science, may let into his mind the enlightenment that will banish superstition and prejudice.

Even if the question were to be considered on the lowest basis, that of the pecuniary rewards of medical and surgical practice, this enlightenment of the public should be welcome to the Profession.

Now, what lies in the way of the performance of this important service by the Press? Two things, I take it: First, the fear that ethical principles may be violated; second, the distrust of the ability of the Press to handle technical matters with accuracy.

In the matter of Ethics the Press has no quarrel with the Profession. The high ideals that have been held by the Profession even from the days of Hippocrates, account for the nobility of unselfish service to which it has attained. None can blame it for protecting itself from the smirch of mercenariness by its Code of Ethics. But that Code should be interpreted reasonably. The fact that a physician's name is mentioned in a news story should not be taken as prima facie evidence that the Code has been broken, and that it is time for the disciplining committee to get busy. On the contrary, it is a fair assumption that no newspaper is looking for an opportunity to give a member of the Profession free advertising. The fact is that the Press, like the Profession, has its Code of Ethics. One of the outstanding rules in that code is that there shall be a clear line of demarcation between reading matter and advertising matter. No self-respecting newspaper nowadays prints concealed advertising, or permits the camouflaging of paid matter. In the practice of journalism it has been found that the reader is entitled to a square deal, and that it is good policy to give it to him. He is entitled to know what is paid for and what is not, in what he reads in his newspaper. And any paid matter that might otherwise masquerade as news is labeled with the word "advertisement" or an abbreviation of it.

It may as well be assumed, then, that whenever a news story appears, carrying the name of a physician or surgeon, it is printed in good faith and without any element of advertising, so far as the editor is concerned. News stories without such essential details as names and places and dates lose greatly in news value. They lack the corroboration that the reader naturally looks for.

There remains, of course, the possibility that the professional gentleman who has been thus mentioned, has "put something over" on the editor. If he has, in fact, accomplished this difficult feat, despite the notoriously "hard-boiled" character of editors in general, it is a serious question whether he ought not to be congratulated, rather than disciplined.

A case in point: Not long ago a difficult and unprecedented surgical operation was performed in a public hospital that is under the control of an institution supported by public taxation. A needle that had penetrated into the heart of a child was taken out of the cardiac pump while it was still in vital function. Here was a matter of the greatest and most instant public interest. It would seem that the newspapers were obligated to give the details of an operation so delicate, so unusual, so revolutionary to the accepted beliefs of the nonscientific public. Unusual efforts were made to discharge this duty carefully, accurately and without sensationalism.

Yet the surgeon who operated was accused of unethical behavior, because he had been named in the news stories. He was obliged to secure from one managing editor a written statement to the effect that he had not sought the publicity, but that it had been forced upon him. This statement was given, not in any spirit of apology, for the newspaper considered that it had done exactly right, but to save the surgeon from undeserved discipline. Even then official exoneration was but tardily given.

I mention this case merely to illustrate how the Code of Ethics may be misused to prevent, or punish, entirely proper relations between the Press and the Profession. What the Press would like to see, I feel sure, is a spirit of co-operation between the two in the dissemination of accurate information about progress in medical and surgical science.

That brings me to the question of accuracy in the handling of technical matters in the daily press. No scientific man can be blamed for feeling great irritation when technical information is mishandled and mangled in the press. Nor is it to be wondered at that such information, when caught on the fly by a hurried and not too versatile reporter, and then subjected to the editing of a brutal copy-cutter and the headlining of another unfeeling artist, should finally appear in print in such distorted shape as to put him who originally gave it out to shame among his colleagues.

But here again the Press has been reforming itself, and seeking the right method for handling technical matter in such a way that it will be fairly intelligible to the layman, and yet will not fall into egregious error. The newspaper with which I am connected—and I have no doubt a similar rule prevails in other news shops—has adopted the plan of asking any scientific man who is quoted in its columns to revise either the copy or the proof. He is not permitted to edit the matter, of course, except from the standpoint of having it technically accurate. But in these days it may be assumed as a fact that if any scientific man is misquoted in the newspapers, it is his own fault. He might readily have checked up before publication, by taking a little trouble to co-operate with the newspaper.

This suggests that societies such as this one might undertake to operate a news bureau to which scientific questions might be referred, and from which should emanate, as occasion might arise, news matter based on the latest scientific developments.

The public is hungry for scientific information couched in simple and understandable language. It is a legitimate appetite that should be satisfied. One phase of it is the hunger for common sense medical talk. The great success that has attended the work of such medical "colyumists" as Dr. Evans and Dr. Brady, shows that there is a fertile field that has lain fallow a long time, waiting for the Profession to cultivate it. Dr. Evans calls his column "How to Keep Well"—which expresses admirably the highest ambition of the Profession, the preservation of health and the prevention of disease. Dr. Evans talks to a great audience every day of the year. He discusses all manner of topics within his field with great frankness and helpfulness. He carries on an unbelievably large correspondence with his readers. Do you know of any member of either Press or Profession who is doing more actual good in the world than this medical journalist, this liaison officer between the Fourth Estate and the Profession? And have you ever heard him accused of unethical conduct?

Here is a concrete example of the sort of relation that ought to exist between Press and Profession, a relation of helpful co-operation. When the conundrum to which I referred at the outset was propounded to me, the happy suggestion was made that Dr. Evans be invited to come and participate in this forum. He was so invited, but, unfortunately, conflicting dates made it impossible for him to be present. This is the more to be regretted, because with his practical and close contacts with both sides of our pleasant little controversy, he would have been able to illuminate it much more effectively than your present humble interlocutor.

In conclusion, permit me to thank you for this opportunity of discussing a question of instant interest to us all, whether pushers of the pencil or the scalpel. It is an omen of good import when the Hennepin County Medical Society undertakes to inquire into the relation we have been considering, for such an inquiry indicates a purpose to improve that relation. I need not say on behalf of my own colleagues that any moves in that direction will be received with friendliness and understanding. We are quite conscious of journalistic shortcomings, and quite ready to consider how they may be corrected. And we have a lively appreciation of the good that may be done by the right sort of co-operation between the Press and the Profession.

PUBLIC COMPREHENSION OF THE DOCTOR'S FUNCTION

By Rev. Phillips E. Osgood
Rector of St. Mark's Church
MINNEAPOLIS

I

One hot afternoon last summer I was exploring the open attic of an old New England house. Stooping to avoid the sharp wooden pegs, which studded the sloping rafters, I groped in the cobwebby dusk down under the eaves. And, among the remnants of an old carding-machine, behind an ancestral cradle and a trundle-bed, my fingers touched a book. It proved to be a hand-made, vellum-covered, rawhide-sewn, yellowed volume. It was the journal of the village doctor from the year 1784 to the year 1793. On the wonderful hand-made paper of King George the Third's own years, with the water-mark of the domain he claimed (heraldically displayed with the fleur-de-lis of France included!) are the quill-penned entries, detailed and itemized, of this young "graduate in physicke, midwifery and surgeonrie." I confess this book has been a magic book to me! It has made possible a venture in comprehending, sympathetic, vivid imagination which all winter has been my happiest spiritual avocation. I found a tea-chest full of irregularly-blown, finger-shaped bottles, with loops of cord to hang them by, and remnants of import-labels still upon them. I found a silver shoe-buckle down among them, too. I found perhaps a half-dozen volumes from the young physician's book-shelf; sober, heavy books of solemn denunciation of Tom Paine, of colonial and revolutionary statecraft, and a dictionary or two. Then I went into the old cemetery where the knee-high red-grass and the golden-rod and yellow daisies covered the graves, and under a clump of tall white pines I found the stone which told me of the country doctor's too short life and of his family.

I repeat, it has been an adventure of vivid comprehension for me. I have lived with that young man, who, when war was over, went back to the tiny village and took up his shepherding of the countryside. I know what medicines he prescribed and in what unbelievable quantities (for thirty drams of "Sal. Febrifuge" or of "Tincture Quaicum cum bals. flores chamomila" was not too much even after "venesection" and emetics). I know how his bills ran and how he was paid with old saddle-bags, a side of veal, bushels of "rie," and an old "shaise body," a load of stones for a wall, or a "rundlet of merlasses." I know how long his bad bills ran (a bushel of onions yere before last); and how, finally, he coralled some debtors to "bring and compare all accounts and balance said books; witness our hands and seals this day." I can picture his harnessing his horse by the light of his lantern and plodding out across the hills in the "extremely bad traveling" "in nocto" to sit at some farm-child's bedside (Captain Brastow, Horseshoer and Wheelwright—"his apprentices") to "inspect the morbid difficult case," prescribe "flores sulphuri and gentian," bleed her a bit, and then face the rain all the road home. I can smile at the prices he charged: six shillings for a confinement, or twelve shillings for twins; five pence for extracting "unum dentem" and prescribing "20 dr. styptic"; a bushel of potatoes for ten "stomachii pills." I can laugh aloud when I find such an entry as this: "To old whisky and appertenances according to your own order." I can enter the drama of the emergency call when he gets halfway to a dying patient's farm and is met by a second messenger who said "dissolution had taken place (wherefore I did turn about and return home and do only charge ½!)." I can find my affections going out to this overworked, underpaid, friendly, physician-dentist-livery-keeper-surgeon-lawyer-shopping-accommodator-midwifer-shepherd-advisor-friend! I think I have begun to understand all doctors and doctoring a little better.

How I wish we might open the books of the modern doctor to the sympathetic, imaginative, confidential comprehension of the public in just some such way. The public does not comprehend enough.

II

Forgive me if I have seemed to take too much time by a mere introduction. I did not mean it for that; it is point one of what I have to say this evening, i. e., *that sympathetic and affectionate re-discovery of the doctor's trade by the public is long overdue.* I trust that in whatever I have to say more you will remember that I feel we have not understood enough what the doctor does and feels and endeavors.

This is largely because the doctor, bound up by his ethics, cannot be a personal apologist. The text that one must not let his left hand know what his right hand doeth, is true within its proper limits; but doctors need not abstain so completely as they have from certain educative projects of educational publicity for the profession in general. I am inclined to feel that the time has come for a modernist movement in medical ethics which will more definitely meet the needs of the present moment. If I am not mistaken, the present code, while it does provide a splendid, corporate compulsion upon the individual, is nevertheless too individualistic in its implications to fit the present opportunity and challenge for a new unity of team-play. There are perfectly fitting projects for the good of the people which can be carried forward without undue individual exploiting. I seem to feel that the change has started already. There seems to be more than a mere tentative abandonment of individualism and almost competitive dissociation. Am I right that the tide has set in rather strongly?

Must not the medical profession presently, in some corporate fashion, take careful thought of a program of public education, not only as to the true function of the doctor, but also in the axioms of preventive medicine? There is a need for democratized medical knowledge, particularly on the side of prevention of disease. (Note that I say prevention of disease! I am not anxious to increase self-doctoring and prescribing for personal sickness. We have too much patent medicine now.)

The evidence of this is obvious. The amateurish and childish conception of medicine behind Christian Science, behind much of the less sane faith-healing movements, and even more back of such aberrational absurdities as the Mazdaznan cult and others which rely upon sun-baths, rhythmic breathing, holy diet-lists, etc., or behind Yogi-ist adaptations—such a concept of medicine shows the necessity of sane publicity.

I dare not suggest the definite details of such an educative program; but I am sure the press will co-operate, if approach is made to someone other than the cub reporter, that there may be the establishment of an editorial policy, against which the sensationalist headliner dare not sin. This is something more than a publicity committee to give out ungarbled news; it should be a project of responsibility for a widespread educative movement in which each unit will co-operate to its degree.

III

I wonder if you recognize the ignorance among many folk as to where they shall go for help.

Someone has a bad chronic headache: it must receive attention. Is it eye-strain, migraine, digestion, sinus trouble, blood-pressure, uterine derangement, auto-intoxication, or a dislocated vertebra? The family physician has his well-known hobby: the patient perhaps says, "If I go to him he will say it's an abscessed tooth; I might as well go to the dentist at once. But whatever specialist I go to will surely find the explanation of it in his own field. I know that Mrs. So-and-so went to six specialists one after the other, and each one treated her for something different." Both the patient and the physician and surgeon must somehow be weaned from what someone has called the panacea-mind. The search for and the tendency to furnish panaceas must be counteracted. The patent-medicine cure-all is only one degree worse.

I am not prescribing a free diagnostician for every family. Diagnosticians themselves are not infallibly unbiased and judicial. I am rather advocating a greater team-play of specialists and of medical denominations. The group association of physicians and surgeons has many advantages, provided there can be group-consideration of all cases which can possibly come under more than one or two heads. But I should like to see a greater medical unity between schools of medicine and surgery. Allopath and Homeopath, Osteopath and even Chiropractitioner need some clearing-house affiliation. A clearing-house of affiliation will do more to standardize the less mature schools and to require thorough training of their membership than sectarianism will ever do. The Osteopath must know his limits; but so must the orthodox physician and surgeon. It may be that medical heresies have originated for the same reason church heresies originated, and that the history of heresies is always the same. I know that ecclesiastical heresies always spring from some underemphasis on the part of the orthodox church of some element of faith for which the normal human heart had an intuitional hunger. The heresy was the emphasis upon that slighted detail-element, elevated into a panacea—the heresy forgot all else in the stressing of the one hitherto-minimized truth. All the constantly emphasized truths were forgotten; this was the only truth! But, bit by bit, as the extreme emphasis on the rediscovered truthlet created a faddist split-off, the orthodox church, coming to itself with a start of surprise, brought the element of faith to which its attention had thus been recalled back into the just balance of the total unity, and the heresy found itself unnecessary, not because it had failed, but because the *whole* truth had thus succeeded.

Perhaps medical science has under way at this present time some movement for medical unity analogous to the movement for church unity. If so, I confess my ignorance; but if there is not a movement for medical unity it is high time there should be one! This is not a matter for the public press, perhaps, but it is for the medical magazines, and the medical press, in general.

IV

The movement for standardized hospitals has been amply justified already. And nowhere has it been more justified than in the provision that hospital staff members shall meet together for the discussion of their fatal cases. With pre-operative diagnosis checked by laboratory post-operative diagnosis in all surgical cases those who use the standardized hospital are put into a valid position of criticism. (I do not mean hostile criticism; I mean impersonal diagnosis of their diagnoses.) One can easily see that the standard of efficiency is bound to be raised when hospital staff members team-play for mutual evaluation.

Now, I raise the question whether there is any possibility of extending this phase of the standardized hospital to group-analysis of fatalities in private practice. We must keep away from bureaucracy, of course, we cannot arbitrarily intensify organizationalism. But is there not some possibility that by mutual agreement under some such organization as this there may be discussion of such case-records as deserve standardized consideration?

Not in the least am I implying that the working of such a project would be primarily for the elimination of unworthy individuals. I am thinking of the increase of medical efficiency by team-play, as between variant and specializing mutual "coaches." Agitation in this direction must come partly by personal selling of the idea and partly by the medical press.

V

My next point may be trite. Doctors have had the Chinese ideal quoted to them "ad nauseam." Preventive medicine is, nevertheless, not yet on its proper plane of consistent policy. Here again I feel a difference of sane temper lately; yet preventive medicine is still too much in the class of group-hobby. At no place in our whole problem is there more clear need of right publicity than in proving to the people how completely they must change from thought of the doctor as one who cures disease after it is established to the thought of him as one who obviates and sidetracks our ills. (We parsons have a similar battle to fight, that our sick-calls and our religion in general should not so connote the impending presence of the undertaker!)

Life-extension projects of all kinds are absolutely legitimate. If there is anything in medical ethics which prevents every doctor writing or saying to his regular patients: "I should much prefer to make a regular appointment with you ever so many months than to wait until sickness gets a head-start of us"—if there is anything to prevent this, then the *anything* is wrong! Could this possibly attain the stage of a real venture of faith on someone's part? Prophylaxis has justified itself as a policy, yet the medical profession has not yet made it its enthusiastic insistence.

I am in touch with the public myself. I do not know that it bluntly voices to you its sentiment on this matter. But the wiser, moulding minority is increasingly saying that "an ounce of prevention is worth a pound of cure," and that the doctors must more flatly and insistently declare themselves for *health* or suffer in the respect of those who have ideals for service. I do not believe that doctors are already of such a mind. Just as St. John saw no Church in his vision of the New Jerusalem, because the Church will become unneeded as a conscience-force, precisely in proportion as it universalizes that conscience-force, so the doctor works to make himself unneeded as a curer of ailments. Doctors believe in health; but medical ethics have seemed to prevent their undertaking a campaign of life-extension education and institutions. It is a case where everyone must say the word together, that no lone voice may call attention to itself and possibly be misinterpreted as egotistic. The public wants this united voice. The public press is the vehicle for this utterance of unanimous belief, with almost any medical news item as its text.

VI

One more thought, and I am done. I am a minister. I represent (ever so unofficially, of course) one side of life as you represent another. From my point of view as a clergyman I want to speak of co-operation between doctor and minister. (If I may be personal and tell you why I individually feel this so keenly: I was for two years on the staff of Emmanuel Church, Boston, when the so-called Emmanuel Movement was first starting. And I then saw what co-operation might bring.) To be very frank, we parsons get the impression that many doctors, if they tolerate us at all in the sick-room, tolerate us as a necessary evil. We know there are many who would gladly allow us free access to their patients. I am honest enough to admit that there are some patients who still think that a sick-call from the minister or, even more, the suggestion of the Communion portends immediate acquaintance with St. Peter. I am likewise honest enough to admit that far too many parsons are lugubrious, melancholy, or depressing in their effect. I feel more vigorously than any of you do the evilness of the doctrine that sickness is a visitation from a wrathful God, who is thus punishing our sins. The doctrine, "whatsoever ye sow, that will ye also reap," is, of course, true physically, mentally, and spiritually. But the doctrine of resignation is straight from Satan himself. God is the power of Life and of Hope and of militant conquest of all evil,—physical, mental, and spiritual. Some ministers have to learn this still.

But, given a common-sense, vigorous-hearted, sympathetic parson, I am sure the doctor would find him eager to co-operate, to be told where his help would be welcome, where his message would be in line with the doctoring; and in his turn I am sure, the right kind of doctor would recognize the contribution the minister has to bring, and where he himself comes to his defined limit of function. The functional neuroses are surely a clear field for faith-impartation. Dr. Worcester's dictum, that at bottom almost all nervous troubles result from a conscious or unconscious dislocation of faith, seems indisputable. And even in organic troubles the question of pain, the tempo of convalescence, and the relief of that suffering which comes from dwelling on the physical self,—in organic troubles, the function of simple, sane, unmorbid religion is manifest.

Faith-healing is a delicate question. I do not venture to speak for anyone but myself. But I myself believe inward empowering is likely to have physical by-products, if the trouble of body or mind is functional. And the limits of the functional are wider than we used to think. The influence of strong faith, intensified by the gift of intercessory self-contribution in spiritual ways, is such that I believe still in the Great Physician. But I do not believe we have any right to disregard the methods and findings of medical science. The doctor and the minister together make the channel of faith-healing. For one must have, not only faith in prayer, but faith in scientific research, to be all-around faithful.

Nor are these the only thoughts on co-operation between doctor and minister, medicine and the Church. If preventive methods are right for one they are right for the other and for both together. Should the Church use the psychiatrist? Yes, but not only for abnormal cases. The determination of the best life-work for a young man is a mutual matter. The physician has his share of the problem, particularly if he is psychologically expert. The manifold problems of married life, which come to both the doctor and the minister, although they often may be sexually based, are not always so. At any rate their solution will be helped if the family physician may be called in to sit beside the minister in his informal confessional. The problems of religious education need the doctor's team-play even more than the problems of the secular education. Even if teeth, tonsils, eyes, and posture may have been attended to in the secular school there is ample function yet for the doctor who will put his skill at the disposal of the Church along lines of first aid instruction, sex and temperance instruction, social service leadership, and vocational choices. I even venture to suggest that careful study of the assertions of religion can bring profitable color to the doctor's pastoral relation. I see no incongruity in the Christian doctor having a moment of straightforward prayer with a Christian patient. I have never yet had a doctor ready to kneel down beside a bed with me or to be a participant in a sick communion. Perhaps it is my fault; perhaps not all mine. I have known doctors who have greatly hurt religious-minded patients by flippancy about the patient's or the Church's prayers. The carnal side of the case is surely not the whole story; any doctor who treats his patient materialistically only, even to the extent, perhaps, of trying a bit of the minister's religion as an experiment in materia medica and not because it moves his own heart—such a doctor has not risen to the highest possible levels of his privilege. The joy is that one finds so very many doctors who spontaneously allow and encourage co-operation with the minister. I can only hope it is the experience of the doctors that they find as many of the clergy who appeal to them as much.

The Church press will welcome your frank opinions. Will you welcome ours?

DISCUSSION OF THE PRECEDING PAPERS

Dr. A. E. Benjamin (President of the Society): The way to understand a man is to meet and become acquainted with him. To know and understand what the purposes of any organized group of men are, is to meet the representatives of that group and learn their motives.

The public is interested in, and have a right to know, what the medical profession has done, and is doing, to prevent human disease and suffering and to safeguard future generations.

The press is interested in the public, and, I believe, is willing to convey to the people that knowledge which makes them healthier and happier.

For mutual helpfulness and a clear understanding of our respective duties and purposes, this program was arranged.

Dr. J. Frank Corbett: I cannot pass up this opportunity of saying that the medical profession has entered upon a new era. We do not believe in professional advertising, but this is not a business affair, it is for the benefit of the public. There has come through the press real enlightenment on the cancer situation. Twenty years ago a patient with cancer was doomed to death. Bludgeon states that 40 per cent of cancer cases now are cured. What has brought this about if not the press publicity? We want to bring the people to realize how to get help and where that help is to be obtained.

William Mills (Supt. Swedish Hospital): When I first went to the Swedish Hospital, I made three things in particular the program: first, adequate financial support for the hospital; second, the best type of medical and surgical service; third, the best possible nursing care which we as a hospital could give patients. There are a number of things in Dr. List's* paper which I should like to re-emphasize, if possible. Some of the things do not concern me particularly because I am connected with a private hospital, and yet our work is much alike, and there are things that should be brought out. I am in a hospital that has to get its financial support from the patients. We have to earn our money before we spend it. It makes the task there especially difficult and yet in a way gratifying. The program of the American Standardization of Hospitals has helped more than anything else and I was reminded of this fact as I listened to Dr. List's paper.

We want to bring to our hospital the best type of medical and surgical service, and we can do so in this city. I feel a very great responsibility to the doctors who come to the hospital. I know what it means to us there, but I do not want for a minute to forget that we are responsible to the public for every patient brought to the hospital, and that fact is brought up to me time and time again, so I try to get the best type of medical and surgical service that I can bring into it.

Then the nursing care is very important. The nurses should be well taken care of. If satisfied, they will render good service. If well treated, they will render good service. I think the spirit of self-sacrificing service is disappearing. There is a tendency to lose sight of that where the service is all paid for. I think it is well that we emphasize the provisions that should be made for nursing care and that we do not forget them.

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*Dr. List's paper is to be published in the Modern Hospital.—The Editor.

There is another thing which has lately come to my mind which would help us here and bring about co-operation with the hospital. I have seen a copy of what is known as a "Clinical Bulletin," which is posted in all the hospitals in Chicago each morning, and I have thought down in my own office why might we not have such a thing here in Minneapolis. I do not know as this is just the time to mention it.

W. A. **Frisbee** (Editor of the *Daily News*): I did not come with any finished speech this evening, but will act somewhat as a footnote to Mr. Chamberlain, but, not knowing what he was to say, I had no opportunity to make preparation. I do approve of his remarks and will perhaps extend them a little bit to clinch some of his points.

I know of a man who is known as "Doctor" by his neighbors who is highly educated in the healing art and is quite confident that a certain bark, used for intestinal troubles, has a different effect when scraped down or up on the tree. The point is this: I do not believe that any group of physicians can have any idea of the public's conception of the progress of the medical profession. Forty per cent of the public have a conception of the medical practice based on about the degree of progress made in the middle ages. I believe the reason why people believe so readily the claims of quacks is their ignorance and superstition that has not been dispelled. It is up to you of the medical profession to dispel this ignorance. Years ago in London a member of my family showed up with the whites of the eyes very yellow. I called in an American physician to confirm my suspicion or diagnosis, whatever you want to call it, and he gave a prescription for calomel. Rather proud of having made a diagnosis, I went to the druggist and asked for ten five-grain catchets of calomel. After an Englishman takes one of these catchets he is entirely well. After taking one you could swallow sand burrs all day long, and they would slip down like raw oysters. I then handed over the prescription, and the druggist said it is the professional obligation of the chemist to keep from the patient all idea of what he is taking. He was doing what all American physicians are doing. It seems to me that the medical profession is to some extent carrying a large part of the burden for not dispelling superstition. I know that the medical discoveries of Pasteur would not have been of such tremendous use if it had not been for the public press. Great discoveries should have wide publication but they should not be half baked.

There is much mystery in the minds of the public with relation to specialists. Dr. White will remember a talk I had with him. At that time I was opposed to specialists. It seems to me there ought to be a colonization or a clinic arrangement so that a physician can perform one service for one fee. When a man is passed along from one specialist to another, he feels in some instances that he is being "bled" a little too much along the way, because he does not arrive until it is too late.

It seems to me that publicity should be entered upon by the medical profession. It should put rather strong emphasis upon the best service which the specialist can render.

Harlan P. Roberts (Attorney): I was invited by your presiding officer to come in here and hear these papers, and, if I thought of anything worth while, to say something. I feel a good deal like the darkey who was brought up before the court. charged with some serious crime. The judge said: "Sambo, are you guilty or not guilty?" "No, jedge, I'm not guilty." "Well, Sambo, have you a lawyer?" "No, jedge, I ain't got no lawyer." "Don't you want a lawyer, Sambo?" "No, jedge, I don't want no lawyer." "What do you want to do, Sambo?" "Well, jedge, I think I jes' as soon drap the whole matter." I think this matter is in pretty good shape to drop right where it is. I see that we have a good deal in common with the doctors and have a good many of the same troubles. We all have our part in giving to the public professional matters which are their just due. I have a profound respect for the medical profession as such. I recognize the fact that there are men among you who are not any credit to the profession, the same as there are among the lawyers, men who are no credit to law, but I want to congratulate you on having what the lawyers have, a live association.

I am pleased to come to this meeting and see the eminent men among you and find that you are doing things and working along lines meant for public good. If you will go to the meetings of the Hennepin County Bar Association, you will find they are trying to do for the bar what you are trying to do for the medical profession,—get it in shape to do its duty to the public, and you will accomplish a great deal by such gatherings. Many things might be said of the shortcomings of doctors. They are all human, and some are more human than others. We have professional medical experts with whom we come in contact in law, and they are of all kinds,—good and bad. Medical experts are necessities at the present time. We cannot get along without them. I wish there were a different way to deal with them, but until there is such a way we have to handle the situation as we find it. Some of you will always testify to what you believe is the truth, but there are some who are very reprehensible and are willing to testify according to what the fellow is able to pay them. That can be corrected and is not in accord with the ideals of the profession; but, nevertheless, it is a fact. I want to say again that I am delighted to be here and to find you working along the lines you are working, wide-awake and trying to do something for the profession and for the community.

Dr. George D. Head: I feel that in the address which it was my duty to write and present here to the Society at our annual meeting I have expressed about all in my heart and mind with relation to this matter. The whole matter of the relation of the profession to the public is not as new a problem as we might think, and there is in our old code of ethics—which it might be well for some of our lay friends to read—subject matter meeting many of the criticisms that have been raised here. I can hardly conceive of a higher and more exalted platform upon which men could work than the old code of ethics that has been laid down by the profession and which is printed and published and is known to the profession and might well be known to the laymen. There seems to be a notion—I do not know where it originated— that the profession is not interested in public health work, and I noticed in one or two papers there was expressed a feeling that our profession is lacking in this and is not particularly interested in the broad scope of public health work—that we are interested in the sick man or the sick woman and desire to get the patient well, but, as for humanity at large and the cause of preventive medicine, we are either derelict in our duty or merely indifferent. The history of preventive medicine does not at all bear out this interpretation. The profession is entirely responsible for the organization and early beginning of preventive medicine. The conception which every medical man has of his duty to the community and to the city is that he is, first, a teacher in every possible way of preventive medicine in all its phases. Every intelligent medical man realizes the force of prophylactic measures in our attempts to eradicate disease, and it is one of the modern triumphs of the profession of to-day that, through the best laboratory study, in a quiet, scientific atmosphere, away from publicity of all sorts, these great truths have been worked out. There is a great deal to be said in favor of the public's knowing and understanding a great deal about real, medical, scientific truths, but have any of you ever stopped to think how long it takes to establish a scientific truth? Dr. A. or Dr. B. in his medical work or in his laboratory thinks he has discovered something which is a revelation of a new truth in the specific medical management of some disease. He thinks he has something which is of real worth and is ready to publish it to the world. The layman, seeing the public press notice, believes the doctor has established a new fact or method of treatment beyond the peradventure of a doubt, and then, when someone attempts to confirm his findings, as happens again and again, all this so called truth, which has been so elaborately worked out and published, falls to the ground, and the public statements announced in the newspapers are within a year or two found groundless. I speak of this because great caution should be exercised by the public press in publishing scientific matter, and this lies back of the reason why we physicians do not move forward as fast as the public might think we should in welcoming newspaper publicity of scientific knowledge. It takes so long to establish it. The layman is likely to underestimate this point, and I think it is a fact which comes to the mind of each of us scientifically trained men when we speak of the education of the people along this line.

I want to congratulate this Society upon this splendid occasion. I think there ought to be further conferences held. The publicity committee ought to get around the table with editors and newspaper men of this city and discuss this problem. These men must be made to feel and know what lies back in our minds with relation to the whole matter.

H. B. Wakefield (Staff of the *Minneapolis Journal*): I am not as well off even as Mr. Frisbee. I came merely with the desire to hear this presentation of papers. I would like to join him, however, in seconding Mr. Chamberlain's statements on behalf of the newspapers of Minneapolis. I differ from the two speakers who have preceded me in that my father was a physician, and I always felt that I had the best end of the argument with him on the matter of publicity. I am sure that the newspapers of Minneapolis want to do all they can to serve the public, and it is better to serve all together than a part. If you will take me as I mean it, let me say that we will furnish the "co" if you will furnish the "operate," and together we will co-operate.

Herbert Park (President of the Hennepin County Bar Association): I want to assure you I am a firm convert to the association idea. I congratulate you on this meeting. It is a wonderful meeting and about the kind we have been trying to carry on in our association. You are doing a great work. There is no question about it. Another thing is apparent—that the medical profession, like the legal profession, is on trial. It is up to you as the medical profession to educate the public. What Mr. Chamberlain and other men have said is the truth. You have got to get to the public and let them know what the facts are. You cannot reach the public in any other way than through the newspapers. You have got to go to the end of the world to defend the man who is right. In the legal profession we are doing that thing. It is up to the medical profession to clear it of the dishonor that is being cast upon it by the men who call themselves doctors and may not have any connection with the profession at all. It is up to you to go before the State Legislature for aid in this line. The medical profession is going to be dishonored if you do not do it. As representatives of the medical profession, you have got to get out and fight more and let them know they are not classed with you, whether they are practicing with a license or without one. You have got to get your association behind it. Some man has got to be brave enough to stand up and clean the profession. It is up to you as members of the medical profession to let these scamps calling themselves doctors understand you do not support them. Let the newspapers know you are in co-operation with them and will help them clean up the greatest profession. Dr. Benjamin and I have been working together the past two weeks and have appointed a committee to consider the question of expert testimony. This committee will report at a joint meeting of the medical and bar associations, either next month or early in June. This is the opportunity of a lifetime. Let us let the public know we are out for their benefit. Even though we do not accomplish anything, the fact that we have gotten together and had a good meeting, such as this, will help us, and the publicity in the newspapers will be of benefit. I hope you will keep this in mind and help us out.

C. B. Winter (City Editor of the *Minneapolis Journal*): Since Mr. Chamberlain referred to newspaper men as hard-boiled fellows I feel a little embarrassed in trying to live up to that report. The first duty of the newspaper is to furnish the news of the day. The news service reaches out from the farthest north to the farthest south. Every happening of any consequence in any part of the world to-night will be noted in the newspaper offices of Minneapolis by morning, where cables will permit, or, if not, as soon thereafter as the cables will allow. We are working to do our share in advancing humanity. One point which you doctors may not always have in mind, when thinking of the relation of the medical profession to the press, is that the newspaper reporter should be able to approach the physician or surgeon and talk understandingly with him. He has to do more than that. He has to be able to converse understandingly, too, with the lawyer. He has to be able to go to the office of the civil engineer or the mining engineer and understand what he is telling him. He has to be able to meet all classes of society understandingly, and, when he returns to the newspaper office, he must write up that news in such shape that the public will know what the members of the various professions have been trying to convey.

You speak of the public. It is a little difficult sometimes to tell who the public is. There is the old farmer, sitting in the kitchen beside a smoky lamp, red sox on his feet, etc., reading his evening paper. He is getting the news. Those are some of the fellows we turn out the news for, and they must understand what we are trying to give them. It has to be written so that the average person can understand it. This makes it difficult when handling news of a technical profession. Whenever we quote a person on some technical subject we ask him to revise the proof and see that it is technically correct. It was mentioned that a committee be appointed to disseminate news for this Society, and that would be welcome assistance. We are willing to co-operate, and, if a committee is appointed, we will welcome anything that we can get from it. We have to be judges of the news because the news value changes every hour of the day. We are doing our best, and will try to boost as well as we can.

Mr. Chamberlain (closing): There is very little more for me to say than formally to close the discussion.

I would like to make one comment upon what Dr. Head said about guarding a scientific truth until it is perfected. I would like to know what a scientific truth is, since a scientific truth of the last generation is a fable of this; therefore, if we wait until it is fully established, the newspapers will go out of the business of publishing scientific news. I realize the advantage of a scientific atmosphere, but I want to call attention to the fact that publicity stimulates investigation and would probably result in arriving at a nearer approximation of scientific truth than if every investigation were pursued to the secret goal to which Dr. Head referred.

It has been a great pleasure to meet with the profession and to hear the different papers presented here tonight and there seems to be very little ground for differences between us.

THE VITAMINS: A REVIEW

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MINNEAPOLIS

Few scientific subjects have aroused greater interest in recent years than the vitamins and their importance in nutrition. For many decades it has been known that restricted or abnormal diets eaten over extended periods frequently resulted in the development of diseases of various types, but only recently has it been shown that these disorders are brought about by the lack of specific substances in the food, and can be cured by the addition to the food of the missing principles. The old idea of the adequacy of a diet made up of sufficient protein, fat, carbohydrate, and salts, has thus become modified, since it is now believed that at least three, perhaps four or even a larger number of additional substances, are essential for normal nutrition. In the former list of supposed indispensables, at least fats have been shown to be unnecessary. Casimir Funk supplied for these hitherto unknown substances the name *Vitamins*, now often spelled without the final "e" to avoid the implication that they are "amines," and McCollum suggested designating the individuals by letter. Three substances are generally recognized,—Vitamins A, B, and C,—and recent work makes it appear that D also must be added to the list. The reason for this indefinite nomenclature lies in the fact that the chemical constitution of the vitamins is still unknown, and no member of the group has yet been isolated in a state of purity, though much labor has been spent in such attempts.

It is thus evident that vitamins can be recognized only by the effects which they produce when fed to living organisms, and the extended studies of the distribution of these substances have been made by producing in experimental animals the disease resulting from a diet deficient in one or other of the vitamins, but adequate in all other respects, and then feeding the foodstuff to be studied. If the animal shows signs of improvement or recovery, the foodstuff is said to contain the vitamin; and by regulating the amount of the food given, it is possible to draw conclusions as to its comparative richness in the desired substance. A second method is to determine the amount of a given food which just will prevent the onset of the disease. A third method depends on the assertion, made by Williams, that the growth of yeast is greatly stimulated by vitamin B. This report has created much interest, but on closer examination it appears that the stimulation of yeast growth may be dependent on substances other than B, so that this method is being carefully restudied, and judgment as to its value must be deferred.

Although the fundamental problems concerning the chemical nature of the vitamins, the reasons for their indispensability, and the ways in which they act physiologically, are still unsolved, much valuable material has accumulated as to their distribution in the foodstuffs, the effects resulting from insufficient quantities, their resistance to cooking temperatures, drying, canning, etc. The vitamin literature has become so enormous that even the specialist in this field cannot hope to cover it all. For the physician or layman a brief summary of the most essential facts may prove of value.

Vitamin B.—The earliest of the so-called deficiency diseases to be studied scientifically from the standpoint of dietary deficiency was beriberi. This disease, prevalent in oriental countries, was found to appear when persons subsisted on a diet consisting mainly of polished rice. The addition of rice polishings, or of their alcoholic extract, prevented or cured the disease. The study of this problem was greatly facilitated by Eijkman's discovery that a similar condition developed in fowls on a diet of polished rice. Using pigeons, he and other workers were able to produce the disease at will and to observe the effects of various modes of treatment. Casmir Funk reported that he had isolated the substance active in curing beriberi, but other workers have not accepted his conclusion.

In adition to its relation to beriberi, it has been shown that vitamin B is necessary for growth, (McCollum and others). It also appears to be an effective stimulant to the appetite, and Eddy reports excellent results from feeding vitamin B to marasmic infants. McCarrison has observed that a diet deficient in B causes extensive disturbances of the ailmentary tract in monkeys,—dilatation of the stomach and bowel, also an enlargement of the adrenals, an increased susceptibility to infection, and a decided atrophy of the ovaries and testes. This latter observation is interesting in the light of Drummond's findings that male rats rapidly become sterile on a diet deficient in B, the well-known fact that women cease menstruating in beriberi, and Benedict's report that a group of young men on a restricted diet observed a diminution of sex interest.

Dutcher has found a reduction in the amount of catalase in polyneuritic birds, restored by curing with vitamin, and is inclined to believe that vitamins are related to oxidation processes. He reports relief to polyneuritic pigeons on feeding thyroxin, thyroid, pilocarpine, and tethelin, and suggests that vitamins may act as stimulants to endocrine organs, either as nerve stimulants, nuclear nutrient, or as the chemical nucleus of an hormone. Voegtlin has reported that B is identical with secretin, the hormone which stimulates the flow of pancreatic juice, but Cowgill, and Aurep and Drummond were unable to confirm this finding.

Since the rôles of B in the body appear to be diverse, it is not surprising that reports have been made to the effect that B is not a single individual, but a group of substances. This point has not yet been decided.

Since it has been shown that B is of great importance to the body, its distribution in foodstuffs is naturally of prime interest, as well as the effect upon it of heating, drying, etc. It has been shown that B is not stored in the body to any extent, so that a supply in the food is of importance. Yeast and clover are rich sources, and spinach contains about one-fourth as much as yeast. Green leaves in general are rich in B. In grains the largest supply is in the embryo, which accounts for the deficiency in polished rice, as the embryo is removed in the polishing process. Beans, peas, many nuts, eggs, milk, many vegetables, the cereals, if the embryo has not been removed, as is the case in polished rice or white flour, and milk, including milk powder, are good sources of B. The amount in milk varies with the amount in the food of the cow, as the animal body apparently does not synthesize B. It is not destroyed by drying, is stable at the temperature of boiling water in neutral or acid solution, but is destroyed by heating in alkaline solution. At temperatures above 100°C. it is slowly destroyed, so that commercial canning or sterilizing processes may cause considerable loss. As B is soluble in water, rejection of the water in which vegetables have been cooked results in throwing away much of the extracted vitamin. On account of the fairly wide distribution of B and its comparative stability to heating and drying, there is not much danger of a shortage in the diet of the average adult.

Vitamin A.—Early in the present century various workers observed that young animals fed on purified proteins, fats, carbohydrates, and salts, or upon certain foods after extraction with alcohol, failed to grow normally. McCollum and also Osborne and Mendel found that on the addition of butter fat to the diet growth was resumed. At first it was supposed that the addition of butter fat must supply the antineuritic substance of Funk, but after an interesting controversy it became evident that the two substances were not identical, since the substance occurring in butter fat was nitrogen free, whereas no preparation of Funk's vitamin had been prepared free of nitrogen. Evidently then both vitamins A and B are necessary for normal growth. Although there has been much divergent opinion, it is fairly well established that a deficiency of A also leads to a disease of the eyes, xerophthalmia, which usually begins with a swelling of the lids and increased sensitiveness to light. There frequently is infection, the cornea may become affected, and blindness result. It was shown by Emmett that the disease could not be transferred by means of sterile threads if the inoculated rat was given plenty of A, and that, if not too far advanced, a supply of A would effect a cure. Adult rats may live for some time, however, on a diet deficient in A, but it has been reported that A can be stored in the body. Various workers have observed this disease of the eyes, particularly in children. Mori in Japan reports it among children in famine regions and he has been able to effect cures by feeding chicken livers which are rich in A. Bloch, in Denmark, cured by feeding milk or cod liver oil; Wells, in Roumania, and other workers also have cured by feeding foods rich in A. McCollum has suggested that "night blindness" in northern regions may be due to a diet deficient in A. The afflicted person is unable to see in the twilight, indicating impaired vision. Other workers have associated still other disorders with a lack of A, for example, susceptibility to infection, and Osborne and Mendel observed diarrhea, diminished appetite, and the formation of phosphatic renal calculi. It has been reported that A will cure rickets, but the latest evidence indicates that the substance in question is not A, but a fourth vitamin, D, which will be discussed later.

Since A undoubtedly is of importance to the organism, its distribution in the foods and its properties are of interest, but since it appears to be stored in the body to some extent it is not essential that it be included in the diet so regularly as should be the case with B, which is not stored. Cod liver oil, butter, and egg yolk are rich sources of A, and milk, including milk powder, and cheese are good sources usually, depending on the food eaten by the cow, for A is not synthesized by the cow, but is obtained by her from green foods. There is thus a seasonal variation in the value of milk in A: it is rich in summer when the cow feeds on green grass, poorer in winter when the animal is stable-fed. Skimmed milk contains about one-half as much as whole milk. There is much in green leaves, for example, lettuce, cabbage, spinach, also in carrots and in wheat embryo, but white bread is a poor source of A. There is some in liver and kidneys, very little in muscles, some in oleo oil, but none in olive oil. Lard sometimes contains A, the amount perhaps depending on the food of the animal.

The chemical structure of A is unknown, but it is free of nitrogen and phosphorus. It is soluble in fats, and fat solvents, such as ether or alcohol-ether. It resists saponification and is stable to drying, but is destroyed by hydrogenation, so that lard substitutes made by the hydrogenation of vegetable oils are probably deficient in A. It is fairly stable to heat, so that it is not destroyed by ordinary cooking, and is little affected by weak acids or alkalies. Steenbock observed that foodstuffs rich in A frequently were rich in the yellow pigment, carotin, and for a time it was considered possible that the substances might be related, but this uniformity of distribution does not always occur, and there probably is no relationship between the two substances. Vitamin A is destroyed by oxidation, and even vigorous aëration will greatly decrease its amount.

By reason of its stability and distribution, A is not likely to be deficient in the diet of the average adult under normal conditions, but dairy products and green vegetables should be included to insure an adequate supply.

Vitamin C.—A disease which for generations has been the terror of sea-faring men is scurvy, and the fact has been well known that the addition to the diet of potatoes, orange juice, lemon juice, or fresh limes would effect a cure, hence the name "lime-juicers" applied to British sailing vessels where lemon (not lime) juice was regularly administered. In 1912 Holst and Fröhlich began a study of scurvy. The work has been continued by McCollum, Harden and Zilva, Chick and Hume, Hess, Drummond, Sherman, Dutcher, McClendon, Delft, and numerous others. Attempts to prove that scurvy is cured by vitamins A or B have ended in demonstrating that neither of these substances is curative. Finally Drummond suggested that vitamin C be added to the list as a substance which would cure scurvy. Much of the experimental work on scurvy has been carried on with guinea-pigs, since Holst and Fröhlich observed that guinea-pigs fed on a diet of polished rice developed scurvy instead of beriberi. A great amount of the work done in early scurvy studies has now been shown to be inconclusive on account of a failure to recognize the definite symptoms of scurvy, but these now have been carefully described and may be referred to in the recent monograph on the subject published by Hess. In addition to the bone and joint changes, such as hemorrhages around the rib junctions and knee-joints, Zilva and Wells report that a shortage of C affects the teeth, and these authors believe that the teeth probably suffer from a shortage of C before any other tissues are affected. Although rats are not subject to scurvy, Drummond believes that they, also, need C, and suggests that they may be able to synthesize enough C for their needs from some precursor which monkeys, guinea-pigs, and man cannot use. This idea is strengthened by Parsons' report that the livers of rats contain C, even when these animals have been fed for a long time on a diet supposed to contain no C. He reports also that the chick contains more C than the egg. McCarrison found that in guinea-pigs suffering from scurvy, the adrenals are enlarged, and there is a decreased production of adrenalin. It is interesting to remember in this connection the hemorrhages characteristic of scurvy. Perhaps C is required by the body in some way connected with the formation of adrenalin. La Mer and Campbell also have observed a connection between a scurvy diet and hypertrophy of the adrenals. Finally, McCollum and Parsons consider C necessary to normal metabolism. Recently reports have been made that scurvy is relieved by feeding phosphates.

The richest sources of C are oranges, lemons, cabbage, lettuce, and tomatoes. Other good sources are spinach, grape fruit, onions, fresh peas, and Swedish turnips. Potatoes are less rich in C, but are important because of the large amounts eaten. Meats and most prepared milks are poor, but much depends upon the original content of the milk in C, as milk from cows on green pasture has been shown to contain as much as three times the quantity of C as that from cows on dry feed. Also much depends on the method of making the milk preparation. Unsweetened condensed milk usually is poor in C; sweetened may be fair. Dried milk powder is usually of little value, but varies considerably. Germinating seeds contain much C, and by allowing them to sprout the content of C is greatly increased. This may be due to synthesis, but some evidence seems to indicate that C may be present in the dormant seed in inactive form, which becomes active during germination.

Drying destroys C except in acid solution, as in orange, lemon, or tomato juice. C is soluble in water, dialyzes through parchment, and is non-volatile. It is more stable in acid than in alkaline solution. Tomato juice boiled for one hour loses about one-half its C, for four hours about 70 per cent, according to Sherman, La Mer, and Campbell. If the juice is partially neutralized with alkali, or made slightly alkaline, the loss of C is much greater. But Dutcher and others have reported that in the absence of oxygen, C is stable up to the boiling point of orange juice. Smith and Medes observed that it is not destroyed by invertase.

Thus C by reason of its susceptibility to drying and high temperatures, and its more limited distribution, is more likely to be deficient in an ordinary diet than are A and B. Green leafy vegetables, oranges, lemons, tomatoes, or cabbage should be included in the diet to secure an adequate supply.

Vitamin D.—The existence of a fourth vitamin, D, curative for rickets is still a matter of controversy, but the most recent evidence seems to indicate that cod liver oil contains some substance, other than vitamin A, the taking of which enables an animal to make better use of the calcium of its food than it is able to do without this substance. In the interesting work of McCollum, following the reports of Mellanby and of Hess, that cod liver oil and butter are curative for rickets, rats were placed on a diet adequate in phosphate, but deficient in calcium. If the calcium was reduced to less than half the optimum amount, the addition of 1 per cent of cod liver oil enabled the animal to make much better use of the calcium than the addition of 10-20 per cent of butter fat, although 3 per cent of butter fat supplies adequate A. Hart and Steenbock also have observed in goats on a special diet that, although butter fat did not influence the calcium balance, cod liver oil caused a negative to change to a positive calcium balance. These facts seem to indicate the presence in cod liver oil of some substance the presence of which is favorable to or necessary for bone-formation. It also has been shown, by Sherman and others, however, that phosphates have a remarkable curative effect on rickets, and that sunlight also is decidedly beneficial. Huldschinsky reports curing infantile rickets by rays from the mercury-vapor lamp. It is thus apparent that the case of rickets is as yet by no means clear.

In consideration of the facts presented in this paper it becomes evident that certain unknown substances in the food are necessary for normal metabolism, and that the absence of one or other of them will interfere with growth, or result in the onset of the various disorders mentioned in the discussions above. We do not know the chemical constitution of any of these substances, and we do not know how or where they are used or needed by the body; but we do know that a proper supply of them will prevent or cure a number of important disorders, and, furthermore, we know specific foodstuffs rich in each of the desired substances, and the effects of heating, drying, etc., in diminishing their vitamin content. Although much has been done, much remains to be done. Doubtless time will bring to light other vitamins and lighten the obscurity which still surrounds most vitamin problems.

The literature on vitamins is enormous. The following brief list may prove of value:

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SPINAL-CORD TUMORS AND "SPINAL ADJUSTMENTS"

A paper recently read by Dr. Elsberg, of New York, at the meeting of the American Neurological Association in Washington, gave his hearers the latest thing in regard to the symptomatology and pathology of spinal-cord tumors. He referred to the fact that malignancy is very common, in fact the majority of spinal-cord tumors come under this headline, and for this reason the recovery from operations on spinal-cord tumors is correspondingly discouraging, which fact one can see without much discussion, and that one cannot always tell what sort of a tumor he may expose in a laminectomy. Dr. Elsberg also referred to the fact that, when a lumbar puncture is done in a suspected case of spinal-cord tumor, for a time the symptoms are worse, but they soon subside, and the spinal cord is able to adapt itself to the invasion of the puncture needle. Then, too, the matter of pain in spinal-cord tumors is rather important, and he has found in his experience that the pain is apt to be located three or five vertebræ below the seat of the tumor itself. This, of course, has been realized for some time, and especially in dorsolumbar tumors, where the root nerves become more descending in their course in the spinal canal. He called attention, too, to the fact that the early symptoms in many spinal-cord tumors are those which refer to the anterolateral columns of the cord, making an invasion either into the anterior roots or into the lateral columns and soon after into the pyramidal tracts, thus bringing about motor symptoms of significant types; that a number of cases of spastic paraplegia, so called, which were described so graphically by the late Sir William Gowers, are, in fact, spinal-tumor growths, and that comparatively few cases of true spastic paraplegia exist without a disease either of the cord in the form of a tumor or in the canal with a tumor growth.

All of this leads up to the danger which may arise to the individual in whom the tumor is not diagnosed early, and then gets beyond the power of the surgeon to remove, until a destruction has occurred or until the pressure of the tumor has become so great as to make its removal unsatisfactory. However, it is looked upon now as justifiable, from a neurosurgical point of view, to perform a laminectomy in any suspected case of tumor, even though it proves to be a myelitis, for even in that instance it need not necessarily shorten the life of the patient.

Just here we may be permitted to divert the discussion toward the "near-doctor," who attempts to adjust the vertebræ for the relief of pain of whatever kind. Perhaps the pain or the disease is located in the head, yet these spinal-adjustment men undertake to trace it to a nerve in the spinal column, and they perform a certain number of spinal adjustments ranging from five to sixty and up. Occasionally a case is treated with a lesser number of adjustments. Now, this adjustment means that there is an attempt made to change the position of one or more vertebræ; sometimes five or six vertebræ are looked upon as the seat of pressure upon the spinal-nerve roots. At all events, imagine a case of beginning spinal-cord tumor or a tumor of the vertebræ undergoing this sort of treatment, and also allowing for the fact that it is generally understood among anatomists, surgeons, and neurologists that the spinal vertebræ do not leave their home seat, for they are so hedged in by muscles and ligaments that it has been proved that it is impossible to make a so-called adjustment or to dislocate in any way the spinal column except by direct violence, such as the blow of a heavy body directly on the spine, a fall in which the person strikes on his head or his heels, or the presence of a malignant disease of the spine. If we believe this theory to be true, that no spinal adjustment can be made, then one might say that the spinal adjuster is doing no harm. But, as a matter of fact, he does great harm by, first, not recognizing or making a diagnosis of a spinal-cord tumor; and, second, he does further harm by attempting, over a period of time, to treat the patient when that patient should be under the care and attention of a surgeon who is qualified to operate. This, of course, the people do not know, nor can they understand why there is so great a divergence of opinion between the neurosurgeon and the spinal adjuster. But it must then be the duty of every medical man to attempt to inform his patient as to the significance of a spinal tumor and its probable ultimate outcome, and to warn the patient that a growth, whether inside the spinal column or attached to the spinal column, or elevating itself above the spinal column, is something that must not be trifled with. Perhaps in this way we shall come to a better understanding, and perhaps several more lives will be saved; at least, these patients can be made more comfortable, or they may even be saved, because it has been recorded many times that a spinal-cord tumor has been safely removed by the surgeon, if they have not delayed so that pressure or malignancy has affected the spinal cord.

A MEDICOLEGAL COMBINATION

A meeting, called by both doctors and lawyers, was held in the West Hotel in Minneapolis recently, in which the question of the selection of medical experts was fully discussed. Although there was some opposition on both sides, a general resolution went through that it was the opinion of the men who were in attendance that a commission of doctors would be a solution of the expert-testimony problem. The commission is to be selected by men chosen from the Hennepin County Medical Society for this district. To this some of the lawyers objected. They felt that it really ought to be a court matter, rather than a medical proposition, and that the selection of men who are in good standing in medical societies and who are qualified as experts could be made by the court and the counsel from either side, the fees to be fixed by the court or by agreement, and perhaps made a part of the costs of the trial.

The matter, however, has gone further than this, and the medical society now has taken up the plan of sending out a questionnaire to every member, getting his biography, the school from which he graduated, his experience, and what he thinks he is best fitted for as an expert, and asking him, further, if he would agree to this new method of selecting a medical commission for testifying before the courts. The lawyers, too, have taken this matter up in their own meeting, and are probably discussing it from the legal point of view, with an effort to help out the medical men in formulating a plan and, perhaps, in securing the passage of a law at the next meeting of the legislature that will permit this plan to be carried out.

The time has certainly come when some sort of method is necessary, for of late the courts have been swamped with doctors; and in some instances the judge has told the jury to eliminate everything said by doctors on both sides, and come to their own conclusions. This is an unfortunate thing for the doctor and a disappointment for the attorney, but a great satisfaction to the judge. And in many instances where personal-injury cases have been before the courts, the jury have of themselves disregarded medical testimony as absolutely worthless, although once in a while they do get an inkling that there is something to be said by a physician who knows his business and who is really qualified to express a reliable opinion. Every man, therefore, is urged to promote the co-operation of the medical and legal professions in securing a plan that will be satisfactory to all concerned, and will re-establish the medical man as a truthful, unbiased witness, if anyone can be unbiased on the witness stand.

MENTAL HYGIENE

To discuss the merits and the magnitude and importance of mental hygiene is a task that is far beyond the editor; but while in Washington attending the Congress of Physicians and Surgeons he heard a paper by Dr. Paton, of Princeton, N. J., and following the paper, which was a very practical one, there was a good deal of discussion as to the merits and demerits of an effort to establish mental hygiene on a sound basis. Some of the speakers attempted to utterly discourage any effort on the part of the medical man to attempt the work because of its importance and because they felt that they could not get the ear, attention, and support of either the profession or the public. Others felt that the association of physicians and educators should be so close that an entering wedge for mental hygiene could be affected. But, as is usual in the discussion of such great subjects, it was decided to appoint a committee to investigate the possibilities of mental hygiene and its establishment on a sound foundation, hence we may have to wait for another year, at least, and then hear a report and discuss it, and adopt it or reject it.

In the meantime, why not help those who are already endeavoring to do something for the future candidate who is already presenting himself as a defective runner in the race of life. The editor's idea is that mental hygiene should have begun, or even now should be begun, by the extermination of ancestors, where it is possible, before the breeding season begins, or the elimination of the misfits who marry. But, granting that both of these have gotten through the barriers, why not work with the prenatal social workers, who are doing so much for the coming child, both in their efforts to improve the maternal state of health and the paternal influence. It is quite evident, from the work of the prenatalists, that a great deal can be accomplished; and if, in unsuitable marriages, the offspring could be, by law, taken away from their parents and either put in a special training institution or be presented to people who are equal to the occasion of bringing up children, something might be accomplished that would be of great value. We hear of so many children who spring from bad surroundings and who lead a precarious existence, and who ultimately grow into disorderly states of mind or body, that for these people, or these children, something radical should be accomplished. On the other hand, we know full well that from seemingly unhealthy environment the child seems to rise above its surroundings because it has inherently a force that leads it in the right direction and, perhaps happily or circumstantially, it drifts into the proper hands for education and training. Many of these children have made accomplished citizens, and they know, from their own experience, the necessity of the advancement of mental hygiene.

If every doctor would center his efforts on the pregnant woman and teach her the necessary simple details of the care of the child in utero, as well as its care after birth, he would start a train of thought that would help the physician and the social worker and educator in the development of suitable regulations and rules that form the foundation of mental hygiene.

BOOK NOTICES

A Laboratory Manual and Text-book of Embryology. By Charles W. Prentiss, Late Professor of Microscopic Anatomy, Northwestern University. Revised and Rewritten by Leslie Brainard Arey, Professor of Microscopic Anatomy, Northwestern University Medical School. Third Edition, enlarged with 388 illustrations, many in color. Philadelphia and London: W. B. Saunders Company, 1920.

The writer of texts for students of medical embryology is faced by two demands: the first is for a narrative of human development, the second is for a guide to be used in following this history in the laboratory. These two needs are sometimes in conflict. The simplest narrative of human embryology, after dealing with what is known of the earlier steps of human development, takes up the further history, system by system and organ by organ, following each separately from its earlier and simpler stages to its complex definitive condition. Attention is given to the chronology of the various developmental processes, but topography is usually considered only when of importance in understanding changing relations, and the specific peculiarities of the embryo at various stages receive little description. Laboratory practice in teaching embryology, however, usually requires quite a different method of presentation. For obvious reasons most of the laboratory work of classes of even moderate size must be done with the embryos of lower animals. The material is studied by dissection or the examination of serial sections, and descriptions are required which deal primarily with specific structural peculiarities and embryonic topography. The combination of these two needs so that the student may secure a clear conception of the general course of human development on the one hand and may secure an actual contact with illustrative material in the laboratory on the other, is a particularly difficult problem.

Prentiss and Arey's "Laboratory Manual and Text-book of Embryology" is a successful essay in the combination of these two requirements for the student of medical embryology. The major part of the book is devoted to the consideration of the material usually available for laboratory work in vertebrate embryology, in particular the pig and the chick. The narrative portion is closely associated with the descriptive part either in closely related sections or by direct incorporation. The connection between the two sections is, in most cases, sufficiently close to allow the student to pass from one to the other without confusion.

In the writer's opinion, the least satisfactory part of the book is that dealing with the earlier stages of development where a summary of the more recent studies of early human embryos could be included. Perhaps, however, this is hardly a fair criticism, since with the delays of modern book making much of the copy of the present edition may have been through the press before these studies were available.

The book is to be commended for its illustrations, the original figures being particularly good.

R. E. Scammon, M.D.

The Surgical Clinics of North America (Issued serially, one number every other month), Volume I, Number 5 (The Mayo Clinic Number), 296 pages, with 163 illustrations. Per clinic year (February, 1921, to December, 1921). Paper, $12.00 net; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

The number contains 296 pages with many excellent illustrations; the twenty-two clinics and clinical lectures cover a wide range of subjects. The cases discussed by Dr. W. J. Mayo illustrate a number of splenic syndromes in which the treatment was splenectomy. Drs. C. H. Mayo, Hunt and Judd, in their clinics, consider various uro-genital disturbances. The clinic of Dr. Balfour demonstrates the use of the actual cautery in the treatment of gastric and duodenal ulcers. A review of a series of cases of malignant thyroid tumor is presented by Dr. Louis Wilson, and Dr. H. W. Meyerding shows a number of patients suffering from diseases of bones. Dr. Adson's clinical lecture on the treatment of brain tumors also deserves special mention.

Theodore H. Sweetser, M.D.

Chemical Pathology. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Professor of Pathology in the University of Chicago, and in the Rush Medical College, Chicago. Fourth Edition, Revised and Reset. Octavo of 695 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $7.00 net.

This book is a far departure from former treatises upon pathology in that it approaches the subject from the chemical instead of the morphological point of view. Such a procedure is directly in line with the rapid progress made in the last 20 years by Physiological Chemistry, which is constantly assuming a more and more important place in the science of medicine.

For those who have had comparatively little of this very important subject during their student days, the fundamental principles are briefly but comprehensively reviewed in chapters under "The Chemistry and Physics of the Cell" and "Enzymes."

This fourth edition differs from its predecessors only in being more detailed and modern as the result of the large amount of research work recently done along this line. One new chapter has been added on "Deficiency Diseases" and another on "Anaphylaxis and Allergy," although the latter is rearranged and augmented material rather than new.

This book will be most invaluable to every pathologist whether a laboratory worker or a teacher; but it also deserves an important place in the reference library of every physician interested in or practising the science of medicine.

Margaret Warwick, M.D.

The Medical Clinics of North America (Issued serially, one number every other month), Volume V, Number 1, July, 1921 (Chicago Number), Per clinic year (July, 1921, to May, 1922), Paper, $12.00 net; cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

A. R. Elliot discusses the differential diagnosis and pathological significance of "gallop rhythm." Charles Spencer Williamson presents four cases of pericarditis with effusion, with special reference to early physical signs, laying stress on the fact that the depression of the left lobe of the liver antedates, in a great number of cases, the development of dullness in the fifth right intercostal space and the rounding of the cardio-hepatic angle.

R. C. Hamill supplements his arguments for non-surgical treatment of coccygodynia with a detailed history of a case.

Milton M. Portis presents cases of esophageal diverticulitis and syphilis of the spine, and gives a résumé of the medical management of duodenal ulcer.

J. H. Hess' article on spasmophilia is of special value to the general practitioner on account of its simple and clear-cut, yet thorough, presentation of the subject.

P. Bassoe's paper on acromegaly, gigantism and dwarfism is very interesting.

W. W. Hamburger again produces ample evidence against the indiscriminate use of digitalis in infectious diseases—a warning that has been so often utterly disregarded.

"Vitamines" being the subject of the day, makes J. G. Carr's article on scurvy very timely.

A. F. Byfield's plea for more thorough physical diagnosis is commendable.

Isaac Abt's "Meningeal Hemorrhage of the New-Born," Solomon Strauss' "Dietetic Therapeutics," and Carey Culbertson's "The Use of Endocrines in the Treatment of Certain Gynecological Disorders," are only a few of a number of well presented articles.

F. H. K. Schaaf, M.D.

NEWS ITEMS

Dr. H. M. Juergens has moved from Perham to Sanborn.

Dr. H. R. Russell has moved from Stewartville to St. Paul.

Dr. P. G. Reedy has moved from Arthur, N. D., to Casselton, N. D.

Dr. W. F. Mart has moved from Beresford, S. D., to Sioux Falls, S. D.

Dr. E. L. Tuohy, of Duluth, has gone to Europe for a summer tour and study.

Dr. R. G. Doupe, who formerly practiced at Little Falls, is now located at Upsala.

Dr. S. E. Leard, of Livingston, Mont., has been appointed health officer of that city.

Dr. James F. Lynn, of Waseca, will be a candidate for Congress on the democratic ticket.

Dr. W. G. Vandesteeg, of Iowa Falls, Iowa, has joined the staff of the Biwabik Hospital of Biwabik.

Dr. V. N. Leonard, of Duluth, has moved to New York City, where he will make his permanent home.

The Northern Pacific Railway hospitals, conducted by the N. P. Benefit Association, cared for 57,258 patients last year.

Dr. W. H. Zwickey, of Superior, Wis., has returned from several months' postgraduate work in Harvard Medical School.

Work on the addition to the State Tuberculosis Sanatorium at Walker will be begun at once. The new addition will cost $100,000.

A class of fifteen subnormal pupils has been organized in the Lymanhurst School, whose work was fully described in our last issue.

A new plan for selecting medical experts was recently discussed in Minneapolis by physicians and lawyers, and the plan is commented on in our editorial columns.

The dedication of the new hospital building at Rochester last month was a brilliant affair, and drew to that city a very large number of distinguished medical men.

Work on the nurses' home for Asbury Hospital, Minneapolis, will be resumed very soon. This building will cost between two and three hundred thousand dollars.

The Lutherans have voted to erect a new building for Bethesda Hospital, of St. Paul, now located at Ninth and Wacouta. The new building will be on Capitol Hill.

Many reports of the number of nurses graduating this year from hospital training-schools in the Northwest clearly indicate that the classes are smaller than in previous years.

Dr. John Godfrey Walker, of St. Paul, died last month at the age of 71. Dr. Walker had practiced in St. Paul for over forty years. He retired from practice some years ago.

Dr. W. H. Van Lackum, of Chicago, has come to the Mayo Clinic as Associate in the Section on Urology, where he will take charge of the work of special urology and allied fields.

Dr. Winter, who has resigned his fellowship in the Mayo Foundation, will engage in the practice of internal medicine in the Andrus, Garberson, Buskirk Clinic, Miles City, Montana.

Dr. H. B. Lamb, of Sauk Center, has gone to Chicago for postgraduate work in general surgery and medicine, and he will go to New York for some special work before resuming practice.

Dr. William M. Smith, a South Dakota pioneer physician, died last month in Springfield, Mo., at the age of 80. He graduated from Rush in 1870, and practiced for some years in Wessington, S. D.

The pastors of seventy-two churches (Episcopal, Methodist Episcopal, Congregational, and Presbyterian) in St. Paul made appeals for money last month for St. Luke's Hospital of that city.

Dr. W. H. Riley, of the University of Minnesota, goes to Porto Rico this month to study the hook-worm. He is a member of a commission of three scientists appointed for this work by the Johns Hopkins School of Public Health.

An exchange editor of a local metropolitan daily paper says the headline that most frequently greets him in both city and country papers of the Northwest is "Free Clinics." A close second to this heading is "Physician Wanted to Locate Here."

Mayo Clinic will install a radio receiving station in the lobby of the Clinic. Investigations are being made with regard to the type of instrument best suited for use and it is hoped that installation will be effected within the next three months.

The Northern Minnesota Medical Association will meet in Detroit on June 6 and 7. The program of papers for the two days is excellent, all of them being presented by men from Chicago, Rochester, Minneapolis, St. Paul, and Duluth. The outing plans are elaborate.

The chiropractors of Minnesota have received a setback that will cause them to pause for at least some time. The State Supreme Court has denied them the right to sign death certificates. They may cause deaths, directly or indirectly, but they may not say so in the usual legal way.

The seventeen hospitals of Minneapolis contributed floats and delegates to the street parade on Hospital Day, and receptions and entertainments were given in the evening at most of these hospitals. The day was celebrated in all parts of the Northwest in a manner that cannot fail to draw attention to hospitals and hospital life.

The tenth anniversary of the establishment of Nopeming Tuberculosis State Sanatorium (near Duluth) was celebrated on May 23d in an all-day program. The Chippewa Indian word "Nopeming" means out in the woods. The present Sanatorium cares for 100 patients; and over 1,700 patients have been treated since its foundation.

Dr. P. M. Hall, superintendent of the Minnesota State Tuberculosis Sanatorium at Walker, has made strenuous efforts to obtain a hospital at Walker for former service men; but the government has announced that no more hospitals of this kind are needed. Dr. Hall went to Washington on this errand and was aided by Senator Nelson in his work of solicitation.

The handsome new building for the care of tuberculous children, which was a gift of the Citizens' Aid Society of Minneapolis to the Glen Lake (Hennepin County) Sanatorium, was opened last month and will accommodate sixty children. Supt. Mariette and Dr. S. Marx White, members of the Sanatorium Commission, made remarks on behalf of the Commission in accepting the gift. The building cost $160,000.

Dr. W. A. Evans, the dispenser of free medical information to millions of people through daily articles (queries and answers) in the *Minneapolis Journal* and the *Chicago Tribune*, and a syndicate of papers, will address the Hennepin County Medical Society on Monday evening, June 5. His subject is "Preventive Medicine and the Physician." Dr. Evans is probably the best popular medical writer in the country, if not in the world. He is always sane, which means a great deal, and he thoroughly understands the people's capacity for absorbing medical instruction.

The mid-summer meeting of the Southern Minnesota Medical Association will be held at Rochester on Monday and Tuesday, June 19 and 20. The program covers a wide field of both surgical and medical subjects, and the visiting physicians will have the opportunity to see almost all kinds of clinics at the Mayo hospitals. Special attention is called by the secretary to the need of obtaining certificates from the railroad station from which one starts, in order to obtain reduced fare on one's return trip. Members of a physician's family are entitled to the reduced rate.

Forty-first Annual Meeting of the South Dakota State Medical Association

The South Dakota State Medical Association held its forty-first annual meeting at Huron, S. D., on May 17 and 18.

Before the date of the meeting there was no little apprehension lest the attendance should fall much below the average because of prevailing conditions in the business world. The attendance was the largest in the history of the Association.

The program contained the names of an unusual number of outside men, all of whom gave excellent papers. Dr. Adams made an admirable presiding officer and gave an excellent presidential address, while Dr. Alway, acting as secretary in place of the beloved deceased secretary, Dr. Spafford, filled the position perfectly, because of long experience in the work and his genial and effective way of doing things.

The entertainment of the members by the Huron physicians, while simple and unobtrusive, largely contributed to the pleasure of all visitors.

It was a meeting well worth attending, and the list of officers elected to carry on the work for the next year gives promise of marked success in the large work laid out for the Association, laid out by itself and by events which obtrude themselves into the life of the profession. The new officers are as follows: President, Dr. G. G. Cottam, Sioux Falls; first vice-president, Dr. F. E. Clough, Lead; second vice-president, R. L. Murdy, Aberdeen; third vice-president, Dr. W. R. Ball, Mitchell; secretary-treasurer, Dr. R. D. Alway, Aberdeen.

There was a spirited contest over the place of the next meeting. Madison sent a delegation of doctors, university professors, and just plain citizens to obtain the honor. The principal spokesman was a don of the college, who offered, with marked eloquence, the city, the college, and beautiful lake Madison with a host of mermaids. The day seemed won by Madison until Dr. Freeman, of Lead, demanded a bond for the production of the mermaids. No bond was tendered.

The 1923 meeting is to be held at Watertown.

A notable event of this meeting was a luncheon given to Rush graduates, of which a brief report follows below.

THE RUSH ALUMNI LUNCHEON

In December last, Dr. L. N. Grosvenor (Rush, '02), of Huron, wrote the eighty Rush graduates in South Dakota inviting them to a luncheon to be given for Rush men in the state during the meeting of the State Medical Association. Thirty-two men accepted the invitation and were present at the luncheon on May 17.

Dr. Grosvenor also asked the Rush men to name their choice of members of the Rush faculty to be asked to attend the State meeting and present papers. Drs. Dodson, Lewis, and Herrick were the favorites of the men who replied to this inquiry. To invitations sent to these three men, Dr. Dean DeW. Lewis alone was able to respond, and was present. Two other Rush men were on the program: Dr. V. C. Hunt ('13), and Dr. H. F. Helmhotz, both of Rochester, Minn. The latter was a Johns Hopkins graduate, but was a member of the Rush faculty in 1909-1921.

After a dainty repast Dr. Lewis told all about Rush and plans for the future. Dr. Helmhotz related much of the profitable years he served in the Pediatric Department at Rush. Dr. Lewis then called attention to the fact that a reception was to be given Professor Haines that evening (Wednesday) to commemorate his fifty years of teaching at Rush. Some one suggested that a telegram be sent to Profesor Haines with congratulations from the Rush men in South Dakota, and such a telegram was sent.

Dr. Chas. E. McCauley ('02), of Aberdeen, gave a talk of his days at Rush. Dr. Oscar R. Wright ('93), of Huron, spoke very feelingly of the influence of Professor Nicholas Senn on the students and the medical world. Dr. G. S. Adams ('01), president of the State Medical Association, related many happy experiences of his time.

It was suggested, and unanimously carried, that a Rush alumni lunch be given at the State Medical meetings every year. Dr. Grosvenor was appointed to carry out this plan.

At the election of the State Association the following Rush men were chosen: Dr. F. E. Clough ('02), of Lead, first vice-president; Dr. C. H. R. Hovde ('08), of Madison, and Dr. L. N. Grosvenor ('02), councilors of their respective districts; Dr. M. H. Ebert ('17), of Webster, and Dr. R. G. L. Mayer ('16), of Cresbard, members of the House of Delegates; Dr. A. J. Moe ('97), of Sioux Falls, alternate delegate to the A. M. A. Dr. G. S. Adams ('01), of Yankton, was the retiring president.

On the programs for papers were the names of Dr. J. C. Ohlmacher ('01), of Vermillion; Dr. A. A. McLaurin ('11), of Pierre; Dean D. Lewis ('99), of Chicago; Dr. H. F. Helmhotz, of Rochester, former Professor at Rush ('09-'21); Dr. V. C. Hunt ('13), of Rochester; and Dr. Geo. S. Adams ('01), of Yankton, the president's address.

The following Rush men attended the luncheon: Ex-Professor H. F. Helmhotz ('09-'21), Rochester; Dr. G. S. Adams ('01), Yankton; Dr. J. F. Adams ('06), Aberdeen; Dr. W. R. Ball ('02), Mitchell; Dr. F. E. Clough ('02), Lead; Dr. F. M. Crain ('91), Redfield; Dr. R. T. Dott ('83), Whitewood; Dr. L. N. Grosvenor ('02), Huron; Dr. O. Haraldson ('12), Watertown; Dr. C. H. R. Hovde ('08), Madison; Dr V. C. Hunt ('13), Rochester, Minn.; Dr. G. V. Jamieson ('13), DeSmet; Dr. M. C. Johnston ('96), Aberdeen; Dr. T. D. Jones ('19), Bowdle; Dr. Dean D. Lewis ('99), Chicago; Dr. C. E. Lowe ('18), Mobridge; Dr. C. G. Lundquist ('18), Leola; Dr. C. E. McCauley ('02), Aberdeen; Dr. J. F. McKie ('10), Wessington; Dr. A. A. McLaurin ('11), Pierre; Dr. R. G. L. Mayer ('16), Cresbard; Dr. A. J. Moe ('97), Sioux Falls; Dr. J. C. Ohlmacher ('01), Vermillion; Dr. C. O. Olson ('02), Groton; Dr. G. W. Potter ('01), Redfield; Dr. J. E. Schwendener ('02), Bryant; Dr. F. H. Staley ('86), Vienna; Dr. B. H. Unruh ('19), Emery; Dr. C. L. Wendt ('95), Canton; Dr. T. J. Wood ('97), Huron; Dr. O. R. Wright ('93), Huron; Dr. R. A. Buchanan ('19), Wessington.

ST. PAUL OFFICES FOR RENT

There is a splendid location for physicians and dentists at the corner of Rice Street and University Ave., St. Paul. This is an active business center for a large and prosperous section of the city. Collections are excellent for these times, and the outlook is excellent. Address Capitol Drug Co., 481 Rice St., St. Paul.

PHYSICIAN'S RESIDENCE AND PRACTICE FOR SALE IN ST. PAUL

The widow of a recently deceased physician in St. Paul offers her home, etc., for sale. House has six living and two office rooms and is thoroughly modern. It is located in a rapidly growing part of the city with splendid street car service. A new physician in this location can start with a good cash practice and build up rapidly. Address 245, care of this office.

POSITION AS SECRETARY OR STENOGRAPHER

Wanted, a stenographic or secretarial position in a physician's or surgeon's office by a young lady of refinement and exceptional ability; six years of teaching experience and three years of office training, including one year of secretarial work in a clinic. Speedy typist, accurate, and dependable. Would be willing to assist in any work that may better qualify me as a medical assistant. Address 246, care of this office.

FINE LOCATION IN MINNEAPOLIS FOR PHYSICIAN

A dentist wants a physician to share his office with him. Rent low. Location excellent for a new physician. Near a high school; neighborhood not overstocked with physicians, and residents practically all own their homes. About a mile to nearest physician's office. Address 243, care of this office.

TECHNICIAN WANTS A POSITION

Young lady technician, with three years' experience and excellent training in all branches of routine laboratory work, blood chemistry, tissue technic and routine bacteriology, wants position. Available immediately. Address 238, care of this office.

PART OF MINNEAPOLIS OFFICE FOR RENT

A physician's consultation room, operating room, laboratory, dark room, joint reception room, Physicians & Surgeons Building, completely equipped, if desired. Leaving city to take government position, Washington, D. C. Inquire of C. J. Eisler, 731 Metropolitan Bank Building, Minneapolis. Very reasonable rent.

POSITION WANTED BY HIGH-GRADE X-RAY TECHNICIAN

Has worked for some of the best physicians in Minneapolis, mainly in doing plate work, but has given treatments. Her work was pronounced among the best exhibited by physicians at the recent Minneapolis Clinic Week. Can give the best of references. Will go to any part of the Northwest. Address 244, care of this office.

PHYSICIANS LICENSED AT THE APRIL (1922) EXAMINATION TO PRACTICE IN MINNESOTA

Name	School of Graduation	Address
BY EXAMINATION		
Bachman, Harry Wilson	U. of Pa., M. D., 1917	Rochester, Minn.
Bowler, John Pollard	Harvard, M. D., 1919	Rochester, Minn.
Greene, Carl Hartley	Johns Hopkins, M. D., 1921	Rochester, Minn.
Jackson, Geo. Henry, Jr.	Harvard, M. D., 1918	Rochester, Minn.
Magoun, Jas. Albert Hughes, Jr.	U. of Pa., M. D., 1916	Rochester, Minn.
Moench, Laura Mary	Johns Hopkins, M. D., 1919	Rochester, Minn.
Reid, John Spence	Toronto, M. B., 1920	Rochester, Minn.
Stark, Wm. Berkeley	Toronto, M. B., 1915	Rochester, Minn.
THROUGH RECIPROCITY		
Athens, Alvin Glenwood	Johns Hopkins, M. D., 1919	Buhl, Minn.
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HYPOFUNCTION OF THE ADRENAL GLANDS AND RACHITIS

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Physiologists and physiopathologists have been able, by means of pathological observations and numerous very difficult experimental researches, to establish with some certainty that the medullary substance and the cortical substance of the suprarenal bodies have, not only a different embryonic origin and a different form and disposition of their cells, but also a different function. The cortex, formed of epithelial cells, which arise from the mesoderm, has the function of regulating some metabolic changes of the skin (Luciani[1]). A lesion of the cortical substance causes the formation of deep bronze spots in the skin. The medulla, formed by cells which come from the sympathetic nervous system, maintains, by its secretion, the tonus of the smooth fibers, especially, according to Vassale,[2] the smooth fibers of the blood vessels and intestines. To abolish the function of the medulla should cause extreme weakness and prostration in the patient, and finally death. The adrenal glands should also have an antitoxic function (Luciani[1]).

But there also exist groups of cells in the abdomen outside of the suprarenal bodies which have the characteristic features and the chemical reaction (chromophil reaction) of those which constitute the adrenal medulla. Among the mammals they are especially abundant in the dog, where they are grouped to constitute particular bodies lying over the aorta or slightly to one side or the other (Swale Vincent[3]). All these groups of cells were called "Zuckerkandl's bodies," or "paraganglion aorticum abdominale" of Kohn, or "abdominal chromophil body." According to MacCallum[4] "in children the so-called Zuckerkandl's organ is a mass of medullary or chromaffin substance situated near the bifurcation of the aorta." The name of chromophil cells was given to all these cells, as well as those of the medulla, because they are similar, and have in common what distinguishes them from the cells of the other tissues, the chromophil reaction (potassium bichromate, 3.5 per cent, gives to the chromophil tissue a dark brown color). According to Stilling,[5] Kohn,[6] and Massaglia,[7] the carotid body, or "ganglion intercaroticum," also contains cells of the same character as those which form the chromophil bodies, or the medulla of the adrenal glands. Chromophil cells should also exist in the coccygeal body and in very few numbers in the pituitary.

The above scientific views, which attribute to the adrenal gland and Zuckerkandl's body a very important internal secretion, receive support from the knowledge that we now have of Addison's disease. Bronzed disease is characterized by the following symptoms: an abnormal pigmentation of the skin (formation of brown spots), and a marked asthenia; and by the following lesion,—a diffuse destructive process of the adrenal gland (very often of tubercular nature). Wiesel found also that in several fatal cases of Addison's disease the "paraganglion aorticum abdominale" of Kohn had disappeared (MacCallum[8]). The value of this datum is doubtful because, in man, from childhood with increasing age, the abdominal chromophil bodies *naturally* disappear.

Moreover, some authors have tried to explain the unknown etiology of some diseases on the basis of a disturbance in the function of the adrenal glands. Stoeltzner thinks that rickets is caused by some deficiency in the function of the chromaffin tissue (MacCallum[9]). Marshall Findley,[10] in experimental beriberi, noted a constant hypertrophy of the adrenal glands and a disturbance in the storage of the phosphorised lipoids. According to this author the disturbed function of the suprarenal capsules acts on the nervous system and aids, indirectly, in causing the experimental beriberi. Finally, some authors also think that the melanoderma which occurs in pregnancy is a consequence of a disturbance in the function of the adrenal glands. Here, then, have been reported the various functions attributed to the adrenal glands and also some of the most important hypotheses which were advanced to explain the unknown etiology of some morbid conditions, based on a supposed disturbance in the function of the endocrine glands, especially of the adrenal glands.

Following the conception of Ribbert, that the cause of rickets is toxic (Stengel and Fox[11]), and considering that the parathyroid glands have a marked antitoxic function, being able to neutralize some toxic products formed during pregnancy and probably afterwards during lactation (Massaglia[12]), my first attempt was to try to produce an experimental rickets from a disturbance in the material change caused by a hypofunction of Sandstroem's glands. Numerous researches were made to ascertain whether, directly, by means of the removal of three parathyroids (the two external and one of the two internal) in very young animals (puppies and kittens), or indirectly, having the new-born from a mother in a state of latent parathyroid hypofunction, it was possible to produce rachitis, but the results were unsuccessful. These attempts having failed, the following considerations have led me to try to reproduce, by means of experimental research, rickets from an adrenal hypofunction. Rickets is a disease which usually starts, according to MacCallum,[13] at the sixth month of the life of the child. The disease then is connected with the first period of the lactation, that is to say, with the condition of the body of the mother; moreover, it is probable that the disease starts in the infant before the age of six months, and that doctors consider six months as the average time for the beginning of the disease, because only at that time are they able to recognize the muscular weakness of the infant and the particular deformities of the bones of its body. Indeed, the statistics reported in the article on rickets in Osler's "Modern Medicine" show that rickets was well recognized in infants of three months of age, and several authors also report that some had rickets at birth (Still,[14] Holt[15]). Then if we will relate the etiology of rickets to a disturbance in the function of the adrenal glands, any such disturbance during pregnancy or during the first period of lactation may determine the disease. It is known that many malformations of the infant are due to a disturbance in the course of pregnancy and lactation. The phenomenon is clearly demonstrated for the intra-uterine life (Ziegler[16]), and also it appears very similar for the beginning of the extra-uterine life. Indeed for the extra-uterine life, this conception is supported by several facts: for instance, during the period of lactation, certain diseases which the mother may suffer surely also affect the infant. Moreover, some substances, such as certain ethereal oils, wormwood, garlic, etc., iodine and its derivatives, sodium bromide, bismuth, and arsenic administered to the mother were also found in her milk; and they may act on the baby. Cathartics given to the mother exercise a laxative action on the infant. Women sick of diphtheria during the period of lactation, have in their milk the toxin produced by the bacilli of Löffler and, if the patient was treated by means of serum therapy, its antitoxin. Women sick of typhoid fever show in their milk the specific antibodies circulating in the blood. Thyroid extract administered to the mother passes into her milk (C. Edgar,[17] C. G. Grulee[18]). Then from the reported examples it results that infants, by means of the lactation, may suffer from the disturbances of the mother; therefore, a hypofunction of the adrenal gland probably will act, not only during the pregnancy on the fetus, but also on the infant during lactation. This hypothesis also receives support from the fact that if, as was said before, thyroid extract, administered to the mother, passes into the milk, probably the normal secretion of the thyroid may also pass into the milk; and in like manner also the secretion of the adrenal gland. Then, hypofunction of the adrenal gland may act indirectly on the infant by troubling the function of the mother, and directly by means of an insufficient adrenal secretion. Consequently, some of the disturbances, and also malformations, which supervene in the infant may be attributed either to a disturbed pregnancy or a disturbed lactation, from an adrenal hypofunction. Now, when we consider the moment in life when rickets appears, its symptomatology, and the lesions which characterize it, we may consider it as a transitory or permanent malformation, arising in the first period of the child's youth. Indeed, several pediatricians (Still[19]) sustain the conception that rickets is a consequence of a disturbance in the lactation, or in the first feeding after lactation. Cleveland Cotton,[20] for instance, says that "the familiar spectacle of the rachitic infant at the breast of the mother whose diet consists largely of amylaceous and saccharine constituents, with a milk of high specific gravity and low fats, emphasizes the importance of a knowledge of fat production. The substitution in this case of a diet of eggs for breakfast and meat for dinner and supper, with a cup of beef broth between times, and limited supply of vegetables and sweets, will frequently show an increased percentage of fat in the milk with subsequent improvement in the nutrition of the child."

All the above-named facts speak in favor of the hypothesis that rickets is a disease which has its etiology in a particular morbid condition of the mother; and, moreover, the following facts support the conception that the above-named particular conditions may be determined by an adrenal hypofunction: (a) The adrenal glands, as endocrine glands, are in a more or less close indirect functional correlation with the other endocrine glands of the body; of these, some, as it is known, as thyroid and parathyroid, have an important function in pregnancy. Then, it is probable that a disorder in the function of the adrenal gland will be able to affect the function of the above-named glands, and, in such a way as to cause some disturbances in the pregnancy and, consequently, on the development of the fetus. (b) Adrenal glands have probably an antitoxic function. A hypofunction of the adrenal glands during pregnancy and lactation may consequently cause a particular auto-intoxication, with all the consequences for the mother, and fetus, and infant. (c) The medulla of the adrenal gland, by means of its secretion, keeps the tonus of the smooth muscular fibers, acting directly on them, according to Vassale,[2] and according to MacCallum,[21] "upon the sympathetic nerve-endings, or perhaps rather upon the substance of the neuromuscular junction"; then, the adrenal glands surely have some action on the uterus, which is formed essentially by smooth muscular fibers, and probably on the phenomena of pregnancy. This view is supported also by the fact that the active principle of the medulla, the adrenalin, causes violent contractions of the uterus, and may determine miscarriages. (MacCallum.[21]) The hypofunction of the medulla of the adrenal gland may cause some disturbances in pregnancy, and perhaps in lactation, disturbances which may act on the fetus or the young infant, causing in it rachitis. (d) According to Thomas, Pappenheimer, and Lewis (MacCallum[4]), in the new-born infants during the first two weeks of life, the adrenal gland should suffer a particular involution. If the etiology of rickets is related to a disturbance in the function of the adrenal gland, an exaggeration of the involutive process which the baby will naturally suffer at the beginning of its extra-uterine life may be the cause of the disease.

My experiments were made on dogs and cats. These were divided into two groups according to the following plan:

A. In the first (Series A) I repeated some of the experiments done by other authors, to establish by means of the removal of part of the adrenal gland tissue, how much of the adrenal gland is necessary to keep the animal living.

B. In the second group (Series B) I tried to establish whether the adrenal glands have some important charge during the pregnancy, and what consequences arise in the mother and the fetus by a lowering of their function. An animal after extirpation of an adrenal gland, living in normal conditions, does not show apparently morbid disturbances, while, after the removal of an adrenal gland of one side and half of the other side, it dies. (See Luciani, MacCallum, and results of the first Series of my experiments.) In the pregnancy many of the activities of the body of the mother are increased, and also the waste products of the material changes are increased. Then, if the adrenal glands have some important function during pregnancy, to remove one, the remaining one, which, in normal conditions, it seems, is able to compensate the lost function of the other, in this condition, may become unable to accomplish its charge. It is also known that after the removal of an adrenal gland, the remaining one, in order to better exercise its increased function, passes into a state of hyperplasia, and it is known that, as the pregnancy is progressing, the needs of the mother and also its waste products increase. Therefore, to remove an adrenal gland before, during, and at the end of the pregnancy, if the adrenal glands have some particular function during it, will show better in a progressive series of morbid disturbances all the consequences of an adrenal hypofunction. For this reason I operated on animals for the removal of an adrenal gland before the pregnancy and during its different periods. Considering also that the medulla has some particular action on the uterus, to increase the hypofunction of the chromaffin tissue, I have accompanied in some animals the removal of a left adrenal gland with the removal of the Zuckerkandl's gland. This is the plan of my researches which are still in progress, but, having obtained some interesting results, which nevertheless still want confirmation, I think it is well to communicate them.

The anesthesia in the animals during operations was done by means of ether. The chromophil reaction for the medulla of the adrenal gland and the Zuckerkandl's bodies was tested by means of a 3.5 per cent solution of potassium bichromate.

EXPERIMENTS A

1. (Experiment). December 21, 1912: Young cat, weighing 1,850 grams, was operated on for removal of the left adrenal gland and half of the right adrenal gland.

December 22, 1912: The cat appears weak and has little appetite. On the following day the animal still appears weak, and it eats a little bread with milk.

January 1, 1913: The animal, from Dec. 22 to Jan. 1, progressively becomes weaker; it dies in the afternoon of Jan. 1. At autopsy circumscribed peritonitis was found near the wound.

2. (Experiment). December 29, 1912: A cat, weighing 2,300 grams, was operated on for removal of the left adrenal gland and one-third of the right adrenal gland. The animal died the following day. At autopsy, no suppuration was found.

3. (Experiment). January 2, 1913: A cat, weighing 750 grams, was operated on for removal of the left adrenal gland. The animal recovered from the wound during the following days; afterwards it always had good health.

4. (Experiment). January 3, 1913. A cat, weighing 1,320 grams, was operated on for removal of the left adrenal gland and one-third of the gland on the right side. On the following days the animal became weaker and weaker until it died in the evening of Jan. 6. During the days of its illness, it refused food. At autopsy no suppuration was found.

5. (Experiment). January 25, 1913: A cat, weighing 2,300 grams, was operated on for removal of left adrenal gland and half of the right adrenal gland. The animal died the following day. The chromaffin reaction of the medulla of the remaining half of the adrenal gland, and also of the Zuckerkandl's bodies appeared very weak.

SERIES B

1. (Experiment). January 24, 1913: A female cat, weighing 1,780 grams, was operated on for removal of the left adrenal gland and of the Zuckerkandl's bodies. The animal recovered the following day, but it always appeared weak. Its appetite was unimpaired.

March 17, 1913: The animal appears very weak, that is to say, in a complete state of asthenia. The animal dies in the afternoon. At autopsy it was found that the right adrenal gland had no chromaffin reaction.

2. (Experiment). September 3, 1913: A young female dog, of mongrel type, weighing 1,800 grams, was operated on for removal of the left adrenal gland and the Zuckerkandl's body. The animal apparently developed normally, and in May, 1914, was pregnant. In pregnancy it had albunimuria and some tonic muscular contractions in the posterior legs.

July 19, 1914: The female delivers two puppies, one of which died the same day of birth. The other, a female, began to grow normally. The young animal during its growth had good health, but progressively its body showed the development of particular malformations which were, on Jan. 8, 1915, so manifest and so characteristic that the animal appeared as a rickety animal. The intelligence of the dog was normal.

June 21, 1915: The rickety dog was killed; it had lived eleven months. Autopsy showed that the vertebral column had a malformation resembling the kyphotic vertebral column (posterior curve) of rachitic children. The chest, with its malformed ribs, had acquired an appearance similar to the rickety chest of children (ricketty rosary).

Concerning the legs and the cranium, it was not possible to establish with any certainty their malformations, because these parts of the body are very different from those of a child. The criterion to look for a control dog would have no value, because the dog of the experiment was not of a pure race.

The microscopic examination of the femur and of the tibia of a posterior leg (the right leg was chosen) did not show a perfectly sharp narrow line of ossification.

3. (Experiment). February 19, 1922: A female dog, of mongrel type, weighing 18,000 grams, forty-seven days pregnant, was operated on at 2 P. M. for removal of the left adrenal gland. The urine, examined before the operation, was normal.

February 20, 1922: The dog at eight o'clock in the morning appears completely awakened, and is able to walk. It is kept without food and water during the whole day.

The chromaffin reaction in the removed adrenal gland, appeared normal.

February 21, 1922: In the morning the dog appears well. The wound is in a good condition. In the afternoon the dog is unable to walk. It shows marked weakness, accompanied by some dyspnea; but its knowledge remained normal. In the evening the dog appears stronger; it is able to walk and its respiration has become almost normal. During the whole day the dog was thirsty, and water was given it to drink. Urine examinations showed traces of albumin.

February 22, 1922: Dog is well. During the morning it had an attack of weakness similar to that of the preceding day, which lasted about two hours. Dog has drunk water and milk during the day. Traces of albumin were found in the urine.

February 23, 1922: At eight o'clock in the morning the dog delivers a dead puppy; at two o'clock in the afternoon it delivers a second puppy, which was living. Each puppy was about 15 cm. long from the extremity of the mouth to the beginning of the tail. Mother has milk in its mammæ.

February 24, 1922: During the day the female dog delivers four living puppies; about equal in size to the other two born on the preceding day. The puppies, considering the volume of the mother, appear very small, as occurs in premature delivery; in fact, the pregnancy had lasted some days short of what was necessary to have been normal (normal pregnancy is 55-60 days in dogs),—that is to say, only 51 days. The few days short of what constitutes a normal pregnancy, in this case, have an importance, because the entire pregnancy in dogs, compared with the human pregnancy, is of a very short duration. During the evening the second born puppy (Feb. 23) died because it was unable to suck the milk. The others when put against the nipple of the mamma were able to suck, and they remained attached. The female dog during the day drinks water and milk.

All the delivery lasted about thirty-six hours.

February 25, 1922: The dog was well all morning and in the afternoon until four o'clock, at which time it was struck by an attack of asthenia, accompanied by dyspnea and some contractions of the posterior extremities. During the evening, two of the four remaining puppies die exhausted because they had become unable to suck. The other two, appearing weak and unable themselves to suck, or to remain attached to the mamma when they were put there were fed artificially with milk obtained from the mamma of the dog by means of a breast pump.

February 26, 1922: Dog is well; it eats bread and drinks milk and water. Some traces of albumin in its urine. The two puppies are still fed artificially, but they appear very weak.

February 27, 1922: The dog is well. The wound is in a good condition, and is rapidly healing. During the evening, the remaining two puppies, notwithstanding the care, die.

February 28, 1922: Mother dog is well.

The experiment brings out the following facts: (a) The dog had a premature delivery; this should not be attributed directly to the operation, because it took place some days afterwards, when the wound was on the way to heal. (b) The dog had, during the pregnancy (after the operation) and at the beginning of the lactation, some attacks of asthenia, which ought to be attributed to a hypofunction of the adrenal glands. Indeed, they had supervened at intervals, and also when the wound was almost healed. (c) The puppies were born viable, but progressively died from asthenia. The death may be attributed either to the fact that they, not having reached their complete development, were not in a condition to live, or because the milk, as a consequence of the abnormal condition of the mother, had suffered some change, which had rendered it less nourishing for the animals.

4. (Experiment). February 22, 1922: A female cat weighing 2,600 grams was operated on at 10 A. M. for removal of the left adrenal gland. The animal was fifty-six days pregnant. The urine, examined before the operation, showed a trace of albumin. The cat during the evening is completely awakened, and drinks a small amount of milk.

February 23, 1922: At eight o'clock in the morning the animal was found dead. Autopsy was performed; in the uterus were found five dead, completely developed kittens. Upon examining the adrenal gland its medulla showed a very weak chromophil reaction. The almost total lack of chromaffin reaction in the chromophil cells indicates that the secretive activity of the glands was about exhausted. The cat died, not as a direct consequence of the operation, because after the operation it was completely awakened, but probably as a consequence of a sudden adrenal hypofunction.

CONCLUSIONS

From my experiments, although still unfinished, as I have said before, the following conclusions are brought out:

1. The animal, deprived of an adrenal gland on one side and a part of the gland of the other side, dies. The most important post-operative symptom is a marked asthenia, which very rapidly leads to the death of the animal. On autopsy the remaining adrenal tissue shows either no chromaffin reaction or only a slight one. This fact means that the secretory power of the medulla of the adrenal gland is exhausted.

The animal, deprived of one adrenal gland, usually remains in good health; it apparently shows no disturbances.

2. The animal, deprived of one adrenal gland and of the Zuckerkandl's bodies, may live and grow apparently normal.

3. Adrenal glands in pregnancy have an important function. The fact is demonstrated by the results of the experiments Nos. 2, 3, and 4, of Series B. Indeed, the female dog, of experiment 2, which was operated on for the removal of the adrenal gland and of the Zuckerkandl's bodies grew apparently normal; but during pregnancy the dog had some muscular contractions and albuminuria. It delivered only two puppies, of

which one immediately died, while the other grew similar to a rachitic animal. The morbid facts find explanation only in an hypofunction of the adrenal tissue. Indeed, the animal was normal except for a lack of one adrenal gland, and Zuckerkandl's bodies.

The female dog of experiment 3 was operated on on the 47th day of pregnancy, that is to say, towards its end. It had some marked disturbances during the days following the operation, characterized by attacks of asthenia accompanied by some muscular contraction, by a premature delivery of six living feti, which all, one after the other, notwithstanding all the care taken to avoid their death, died. The attacks of asthenia also supervened in the mother during the first days of lactation; they disappeared when lactation was stopped because of the death of the puppies. All these morbid phenomena, as was said in the explanation of the results of the experiment, may be attributed to an hypofunction of the adrenal glands.

The death of the female cat of experiment 4, operated on at the 56th day of the pregnancy, that is to say, at its end, ought to be attributed to a sudden and very strong hypofunction of the adrenal tissue.

Moreover, considering the behavior of experiments 2, 3, and 4 of Series B, it results that the adrenal glands exercise an important function in the pregnancy, and that when it is disturbed, morbid consequences arise for the mother and the new existence.

Experiment 2 of Series B gives rise to the problem: Was the puppy which developed with a rachitic aspect a true rachitic puppy, or did it only have a rachitic appearance; or did the phenomenon happen only by chance? The problem awaits solution by numerous further experiments. However, experiments already performed and reported in this article clearly demonstrate, as was mentioned before, all the importance of the adrenal gland in pregnancy; the removal of a part of adrenal tissue causes more severe effects for the mother and the feti the closer the operation approaches the end of the pregnancy; the morbid consequences are abortion, premature delivery, and also death for the mother, and incomplete development and malformation or death for the feti and the new-born.

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AMYLOID INFILTRATION: REPORT OF A CASE

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It is known that amyloid infiltration results as a consequence of chronic suppuration, syphilis, chronic ulcerative tuberculosis, chronic dysentery, etc. It is characterized by the formation, inside the coats of the blood vessels and in the connective tissue of the organs, of a specific substance which has a hyaline appearance and a characteristic chemical reaction. When treated with iodine and dilute sulphuric acid, this substance becomes violet, blue, or green. Because of this reaction, which resembles the starch-iodine reaction, Virchow applied the name *amyloid degeneration* to this condition. The modern viewpoint, however, considering that this substance probably infiltrates the tissues from without, designates it "amyloid infiltration." Thus far, our knowledge of amyloid infiltration is not sufficient to show us clearly all the phenomena involved. In fact, MacCallum,[1] speaking of the origin of the amyloid substance, says:

> A point of peculiar interest is that amyloid seems to go through several stages in its formation—at first it will not stain with iodine, although giving a metachromatic stain with methyl-violet. It is only in the latest stages that it will give the blue or black color with sulphuric acid and iodine. The early stage of non-stainable amyloid recognized by Davidsohn was called *achroöamyloid*. Quite recently we observed an instance in a young man with advanced tuberculosis in whom a typical sago spleen, enormous, bacon-like liver, and advanced renal amyloid were found. Nevertheless, although the diagnosis was unmistakable to the naked eye, none of the amyloid would stain with iodine.
>
> Besides the general amyloid infiltration, there occur localized amyloid deposits, sometimes in the form of tumor-like masses, usually in connection with cartilage containing structures, such as the bronchi. (Herxheimer, Schilder.)

This is in accord with the opinion of the majority of other writers of to-day.

In view of this condition, the study of a single case which offers some variations in the morbid conditions, is interesting, because it may throw some new light upon the unsolved problem of amyloid infiltration.

The following case, on which I performed the autopsy and studied the lesions of the various organs, was studied in its clinical course by Dr. J. H. Moore, of Grand Forks, N. D.

The clinical history is from Dr. Moore's office records.

A man, 59 years of age, called on one of us on May 17, 1921. In his history the patient states that there is no hereditary disease in the family. He had the common diseases of childhood. At the age of 26 he had influenza, and at 29 he had pleurisy of the left side. He recovered completely from both diseases. His health was good until two years ago, when, at the age of 57, he had influenza again. Ever since, he has had more or less trouble. During April of this year he visited a physician who, finding albumin in the urine, made a diagnosis of Bright's disease. Treatment for Bright's disease was instituted, but not noticing any improvement, on May 17 he called on us.

Examination.—The patient has no indications of syphilis or tuberculosis. There is normal development of the skeleton and muscular masses. He appears weak, meager, and pale, and complains of feeling weak. Examination showed a large tumor of the spleen, which reached beyond the anterior axillary line, and the organ was enlarged and hardened. No other important symptoms were noted.

Blood examination.—Red cells decreased in number, averaging 3,500,000 per c.mm.; some alteration in form and some poikilocytosis. Slight increase in white cells, 9,000 per c.mm.

Urine.—There were a few granular casts and a trace of albumin.

Wassermann, negative.

These data are the average of the examinations during the course of the disease, which ended with the death of the patient on October 9, 1921.

The disease had a progressive course; the patient gradually sinking without any temporary improvement. His mind remained clear at all times. During the last few days of life, edema of the lower extremities was noted, due to the weakened heart action.

Autopsy.—General examination: The man appeared to have a normally developed skeleton, but was very thin, due to the atrophy of the muscular and subcutaneous tissues. This atrophy had not reached the stage of marasmus.

In the thorax there were found some old adhesions of the left pleura. No other lesions existed in the lung on this side, nor in the lung or pleura of the right side. The heart was in good condition. There were no apparent lesions.

Abdomen.—The spleen was enormously enlarged and slightly hardened; whitish-grey in color; weight 1,100 grams. When cut the surface did not bleed, and the color was the same. The normal appearance and structure of the spleen had disappeared.

The liver appeared moderately enlarged and slightly hardened. The color was whitish-yellow. Punctiform congestion was present in some areas.

The kidneys also appeared a little enlarged and hardened with a grayish-white color. The cortical substance was slightly increased.

Parts of these organs were fixed in Zenker's, Flemming's, formalin, and alchol.

Chemical reaction.—The liver, kidneys, and especially the spleen showed the characteristic reaction of amyloid infiltration.

Microscopic examination.—The entire spleen showed the lesions of amyloid infiltration. No part remained unaffected, so that the normal appearance of the organ was completely lost.

The liver showed amyloid areas, especially in the interlobular spaces. The hepatic cells were in fatty degeneration.

The kidneys showed localized amyloid infiltration in the Malpighian glomeruli. No other parts of the kidneys were affected. Some of the epithelial cells of the tubules showed fatty and albuminous degeneration.

No important lesions were found in the other organs.

An examination of this case brings to light some important facts bearing on a greater knowledge of amyloid infiltration. That the infiltration arose from some cause is certain, but that it did not arise from any of the causes heretofore established is equally certain. What the cause was, in this case, we cannot say, for the patient had not had any of the diseases known to cause this infiltration. The man had suffered only from two attacks of influenza. Were these the primary cause determining the occurrence of amyloid infiltration? While we cannot answer positively, it would surely appear that amyloid infiltration may start from some cause other than those already established.

The spleen, in this case, was completely involved—an anatomical lesion which is very infrequent in amyloid infiltration. This fact, together with the enlargement and hardening of the liver, the anemia, and the fact that the man had not had any of the diseases commonly causing amyloid infiltration, led the clinician to a diagnosis of Banti's disease. The syndrome was almost identical, as was the issue. Only at autopsy were the appearance and reaction of the spleen which characterize amyloid infiltration demonstrated; and from these a diagnosis of amyloid infiltration, and not Banti's disease, was made.

This case is important from another standpoint, in that it demonstrates that Banti's disease and amyloid infiltration may have, at times, the same clinical course, leading, as in this case to confusion when the etiology of the amyloid infiltration is unknown, since the etiology of Banti's disease is always obscure. Under such circumstances, the diseases can be distinguished from each other only at autopsy when the characteristic chemical reaction of amyloid infiltration can be demonstrated.

Note.—I am indebted to Dr. J. H. Moore for the clinical history of this case and for his assistance in giving me access to his complete record—while my thanks are due to Dr. A. C. Massaglia, Professor of Pathology, for his assistance and advice in controlling the diagnosis and study of the lesions.

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FUNDAMENTAL BIOLOGICAL PRINCIPLES UNDERLYING RADIOTHERAPY*

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The present-day importance of radio-activity in the treatment of human ills, as well as the recognition of a gradual widening horizon of future possibilities in this field of physiotherapy, has stimulated the writer to try to bring to you some of the recognized basic facts governing this specialty in medicine; and, if he can in any way simplify the reasons for the application of this apparently mysterious agent, the purpose of this paper will be accomplished.

Two fundamental laws are operative in radiotherapy, namely, (1) that a certain amount of radiation absorbed by living cells will produce their death, and (2) that the amount of such radiation is dependent upon the kind and character of cell irradiated. The cytoclastic action of *x*-rays has been definitely proven and demonstrated in our leading experimental laboratories, by such tests as (1) arresting of development in chick eggs following irradiation; (2) by causing intra-uterine deaths of embryos in small animals; and (3) by causing skin necrosis and ulcers in cases following an intense or overexposure. This cell-death, or cytoclastic action, is brought about by small doses in embryos and large doses in skin necrosis, thus establishing a law of quantity for each grade or character of cell.

Bergonie and Tribondeau have formulated the following law, namely, that a tissue is radiosensitive in direct proportion to—

1. Increased rate of karyokinesis, that is, tissue that proliferates readily is more radiosensitive; and this explains the intense action of rays on malignancies, which, as you know, represent a rapid and lawless cell growth.

2. Increased interval of karyokinesis, such as is seen in young cells in young tissues, where the karyokinetic cycle is immature. These are known to be less resistant than older cells to radiation.

3. Lessened determination to morphology and function in cells, as it is known that a highly organized muscle cell is less vulnerable to radioactivity than is a simply organized embryonal cell.

From a radiosensitive standpoint, let it then be stated that tissues are divided into two groups namely, those which are hyposensitive and those which are hypersensitive.

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The hyposensitive represent—

1. Normal tissue, such as glands, namely, ovaries, testes, thymus, and thyroid.

2. Pathological tissue, such as lymphoid, fungoid mycoses and varieties of carcinomas, sarcomas, and epitheliomas.

The hypersensitive also represent—

1. Normal tissue, such as bone and muscle and nerve tissue.

2. Pathological tissue, such as osteomas, lipomas, etc.

The important therapeutic applications of radiotherapy, in a general way, may be stated to depend upon (1) stimulation; (2) functional reaction, and (3) destruction.

1. Stimulation, as noted in the production of sclerosis in the treatment of lupus, was one of the early observations in using radiotherapy. Recently Peterson and Saelhof have demonstrated that cell-stimulation has been proven by röntgenization of the liver, kidneys, and spleen; and by so doing their glandular outputs are increased by the use of small or stimulating doses. This is yet a new field, but bids favorable for a wide application.

2. Functional correction of glandular structure, whether the gland be comprised of glandular tissue in excess as in fibroma, or whether the gland be functionally aberrant as in thyroid pathology.

3. Destruction, where the annihilation of cells is desired, as in the treatment of malignant neoplasm.

Compartively speaking, all tissues are divided into two great classes, namely, *normal* and *pathological*, that normal tissue has the greatest resistance to radio-activity, and that it varies as to age of person, part of body and type of tissue from which it originates. Abnormal, or pathological, tissue may be grouped as follows:

1. Acute and subacute inflammatory, which is characterized microscopically by lymphocytes or round-cell infiltration. They are the least resistant and most readily influenced by radiation.

2. Chronic inflammatory tissue, which is microscopically characterized by fibroblasts or connective-tissue cells. These are more resistant than the lymphocytes and less readily influenced by radiation.

3. Granulomas, which are microscopically characterized by giant, plasma and epithelioid cells. They are more resistant than inflammatory tissue and thus less readily influenced by radiation.

4. Neoplasms, whose cells vary according to the type of tissue from which they originate. The lower type or sarcomas are more resistant and less readily influenced by radiation than the granulomas, whereas, the highest type, namely, the epithelial and glandular, as seen in carcinoma, are the most resistant and the least readily influenced by radiation, of all pathological cells. The degree and duration of response of tissue cells to radiation is in proportion to their power of resistance, or, in other words, the effect is the greatest and the longest in cells of the least resistance and vice versa.

After an *x*-ray exposure the resistance of all cells is influenced and their activity proportionately affected. The more resistant cells recover in shorter time than those of less resistance. If the interval between the exposures is sufficiently long, all the cells will recover. After a second exposure, the activity of the cells that have not fully recovered is more readily affected, as their resistance has already been lowered or influenced. With each successive exposure the resistance is more and more influenced, and the activity is proportionately less and less maintained. When the accumulative effect to the point of saturation is reached, the cells become non-resistant and inactive. The rapidity with which the point of saturation is reached depends on the character of the cells and the intensity of the exposures. It may result from a single exposure or from many exposures and when this stage is reached, so-called involution sets in, that is, the non-resistant and inactive tissue elements are unable to withstand the action of the local tissue assisted by the body's protective forces and are absorbed by the circulating fluids and phagocytes. If the involution is within bounds, a normal absorption results, but, if it is rapid, ulceration may result, depending on the rapidity of the absorption. The intensity and interval of *x*-ray exposure is guided by a so-called erythema dose, which is nothing more or less than a normal skin response to radiation and manifested by a redness of the skin, which comes on about ten days following an exposure. During the period of erythema the cells are inactive and dormant, and no cell-proliferation takes place. Three to four weeks' time must be allowed to elapse from time of exposure until following exposure is made where an erythema develops.

Three weeks after a scalp is exposed to one unfiltered skin unit dose, the hair falls, which is an indication of complete inhibition of the hair papillæ cells. As all the tissues exposed to the *x*-ray are influenced, the pathologic cells, if exposed to a suberythema dose, must be in the same state of inhibition at this time. Six weeks after exposure the hair grows again, which is an indication of complete recovery of the hair papillæ cells. As above stated, namely, that the intensity and duration of the response to radiation are in proportion to the resistance, the pathological cells will not have recovered to the same degree in the same time, so that, if a second exposure is made at the time of recovery of the normal cells, say, at three weeks, following the first exposure, the activity of the pathological cells will be more affected as their resistance has already been influenced.

In the treatment of malignancies by radiation, the aim is to deliver to the pathological cells as near an erythema dose as is possible. This is usually an easy matter when the lesion is a superficial one, as, for instance, facial epitheliomas; but when deeper structures are involved, as gastric and uterine carcinomas, with their surrounding metastatic glandular involvement, the efficiency of this form of therapy becomes decreased as the overlying tissues absorb the greater amount of the ray.

Up to the present time the method of estimating *x*-ray dosage has been by indirect methods, namely, by comprehending the electrical energy delivered by an *x*-ray transformer and registered by milliamperage, voltage, distance, time and filtration. This method, however, is contended by some physicists to be liable to error at times, as different transformers will deliver varying amounts of potential, even though the above-enumerated secondary factors be alike, and is explained by being due to different wave peaks gathered by their revolving rectifying discs.

Schmitz states that radiation up to 60 per cent of an erythema dose delivered to a cancer cell is a stimulant to that cell which must suggest to us the danger and folly of meddlesome interference by radiation when this fact is not known and appreciated. Delphey says that "the action of radio-activity may be compared to the results of a whip to a horse: a slight application, the horse trots, normal stimulation; a stronger application, the horse runs away, stimulation to erratic growth; continued beating of the horse results in his falling down dead, destructive stimulation. We can accomplish any of these actions we desire, but, unfortunately, while we are destroying the neoplasm at the surface, we may be stimulating the tissues to erratic growth deeper down, and while the surface may heal over and we think we have cured the neoplasm, such is really not the case."

Mention at this point should be made of a new device known as an ionization chamber, the same giving an accurate measurement of the rays absorbed by a part, thus showing an accurate amount used and, apparently for the present, solving this dosage question. It is hoped this will help to bring about a standardization of technic and rectify present uncertainty.

Present knowledge of radio-activity indicates that the biological changes produced by this energy are the same whether caused by radium or the *x*-ray, also that the latter has the same effect when produced by different voltages, as long as it reaches the cell desired. The high voltage newer *x*-ray apparatus which is now being much heralded will of course reduce the time factor in treatment exposure, but the biochemics within the cell remain the same after the radiation once becomes absorbed. In view of the fact that the superficial tissues absorb the major portion of the radiation, especially so when our present transformers and technic are used, the advocates' claim for the new and powerful apparatus, associated with a great superiority in technic, may well be grounds for an expected cure of malignancy, and therein abides the hope of radiotherapy.

CONCLUSIONS

1. Two fundamental laws govern radiotherapy: (1) a certain amount of radiation absorbed by living cells causes their death; (2) the amount of such radiation is dependent upon the kind and character of cell irradiated.

2. Tissue is radiosensitive in direct proportion to the rate and interval of cell karyokenesis, as well as to determination of function and morphology of cell.

3. The therapeutic application of radiotherapy is dependent upon (1) stimulation, (2) functional reaction, (3) destruction.

4. Tissue is divided into two classes, normal

and pathological; and the normal has the greater resistance to radio-activity.

5. Pathological tissue is grouped into acute and chronic inflammatory, granulomas, and neoplasms, the same having an ascending degree of radiosensitivity, from lymphocytes in the acute inflammatory tissue to carcinoma in the neoplastic group.

6. The saturation point in radiation is dependent upon the character of the cell, as well as on the intensity of the radiation.

7. Involution within bounds is absorbed by the circulating fluids and phagocytes, and, when beyond, usually results in necrosis.

8. Intensity and interval of exposures are governed by the so-called erythema dose.

9. The indirect method of measuring *x*-ray dosage will be replaced by the direct or use of the ionization chamber.

10. The biological changes produced in tissue cells are the same whether produced by radium or *x*-ray of different voltages, and the newer more powerful units will establish better technic and greater efficiency with promising future for radiotherapy.

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THE CO-OPERATIVE RELATION BETWEEN THE SPECIALIST AND THE GENERAL PRACTITIONER*

By J. L. Hoffman, M.D.
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[See editorial comments on this paper on another page.]

I wish to open for discussion the subject of the co-operative relation between the specialist and the general practitioner, considered from both a professional and a financial point of view, naturally taking the stand for my own class, which, I think, is pulling the shorter straw in the relation between the two.

The "anti-fee-split" question, opened some years ago and originated, as I am informed, in Minnesota, was recently taken up by the American College of Surgeons, which made refusal to split fees an absolute condition to membership in that body, the aim being to uplift professional ethics and quell the commercial tendencies of the medical profession.

A campaign with a noble aim like this is certainly praiseworthy and ought to be encouraged and supported, if there is any hope for the desired result. It strikes me, however, as humorous that several years after the "anti-fee-split" law took effect, the Assistant Director of the American College of Surgeons publicly announces that 10 per cent of the operations performed are unnecessary.

Years back before any "anti-fee-split" law was thought of fee-splitting was practiced by surgeons of unquestionable morality and the highest professional ethics. Did those surgeons perform unnecessary operations? I do not believe it.

It may be worth mentioning, in addition, that during the "anti-fee-split" campaign one of the most ardent promotors of this campaign was prompted to his activity by nothing but petty jealousy, another surgeon getting the cases from a village where this man had made a big haul, and later on, after the "anti-fee-split" law had taken effect, paid the layman in the same village from ten to fifteen dollars for every surgical case he sent him. I cannot prove this, but I have the information from an authority that I consider absolutely trustworthy. I have also heard from a reliable source, that, although the first-class hospitals demand a written declaration from their staff-members not to split fees, this, however, is practiced by some of them.

Conditions like this surely do not indicate that the "anti-fee-split" law has accomplished its aim.

From The Journal-Lancet of January 15, 1922, I see that Dr. A. W. Abbott, of Minneapolis, congratulates the Hennepin County Medical Society on the wonderful improvements of professional ethics during the last forty years. I must compliment Doctor Abbott on his paintings of the Judas and Decimus Brutus of the medical profession, but I think he will find these traitors just as well outside as inside the fee-splitting class.

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*Read before the Park Region District and County Medical Society at Fergus Falls, Minn., January 18, 1922.

Fee-splitting is, in my opinion, the smallest crime of the numerous commercial schemes and no crime at all if not kept secret. It is certainly a blessing to hear that professional ethics have shown such wonderful improvements during the last forty years. They must have been rather bad forty years ago.

The Assistant Director of the American College of Surgeons asks us to appeal to the public for help against the fee-splitting surgeons and practitioners. Let us first ask the public to help us to prevent the election to the legislature of representatives who support such an outrageous bill as to give chiropractors license to practice major surgery and obstetrics by taking one year additional course, and let us ask the public to help us to prevent the press from advertising a charlatan's treatment and cure of nephritis, diabetes, and other organic diseases by a silvery tongue and a juggler's manipulations.

Has the splitting or non-splitting of fees any influence upon the morality of men? I do not believe it has. The medical man who indulges in commercial schemes will surely do so, law or no law, and the specialist who secretly writes the layman, offering his services, shows certainly poorer professional ethics than the specialist who gives the general practitioner a share of his fee.

As the law now stands, every surgical case that a conscientious general practitioner gets on his hands is a financial loss to him. The patient, as a rule, wishes, and often insists upon having, his home doctor along with him when he goes away for an operation. He is willing to pay him, but the price must be reasonable. When the doctor's expenses are paid, there are possibly a few dollars left, but the doctor has lost both professionally and financially by his absence.

If the Assistant Director of the American College of Surgeons wishes to hunt for unnecessary operations, I think he is more apt to find them among the village practitioners who have learned to remove an appendix or to butcher a pair of tonsils than in the practice of the man who takes his cases to a clinic where the patient is examined by more than one professional man to have the diagnosis verified.

During the epidemic of appendectomies, which was in its glory a few years back, lasted about a decennium, and probably has not died out yet, I believe a great part of the medical profession was just as much under the influence of appendicular hallucinations as the layman youngster who did not seem contented unless he could flash a "pendic" in a glass vial in the face of his crowd of admirers.

That the fee is split evenly between the specialist and the general practitioner is entirely unjust and can be seen only in a commercial light, but I consider it fair that the general practitioner gets a small percentage sufficient to cover his expenses and loss of time. This would not hurt the specialist. His fees are relatively larger than the general practitioner's and they ought to be. He has, as a rule, more responsibility, needs more skill and experience, and deserves more credit and pay. I say as a rule, because I think there are exceptions. For example: Has a surgeon who operates on an uncomplicated case of appendicitis in a first-class hospital with two or three professional assistants and half a dozen nurses at his command a more difficult task on his hands than a general practitioner who makes a forceps delivery or a version in a shanty or a chicken coop with assistants who have to be watched during the whole performance to prevent blunders. The first operation, which takes from five to ten minutes' time to perform, is valued up to five times as much as the last one. I do not insinuate that the surgeon's fee is too big, but I think that the general practitioner's is too small.

A radical law like the "anti-fee-split" law does in my opinion nothing but harm and is apt to cause the general practitioner to approach the commercial specialist in place of the ethical, conscientious one or to tempt the practitioner to practice on cases which ought to have been in a specialist's hands. With the splendid ways of communication we now have at our command, it should be an easy matter to transfer the patient to a place where he can get the most proper care. The modern medical clinic where each specialty is represented by an experienced man, or larger center where the specialist is easily reached and up-to-date hospitals are at our disposal, is surely to our advantage, and ought to be giving the general practitioner ways and means to support these institutions without any financial loss to himself.

An improved professional and financial cooperation between the specialist and the general practitioner and between the practitioners themselves would help to quell petty jealousy and commercial schemes and uplift the standard of the medical profession. A general practitioner ought to be able to spend a month each year at an educational institution to keep up to date and develop his pathologic, diagnostic, and therapeutic ability, by which he will become more able to serve his community than by doing experimental surgery. How can the general practitioner become financially able to do this under present conditions?

It seems to me that the only bad feature about splitting fees is the secrecy involved, and I think if the patients were told about it, it would be considered fair that the physicians who have all the trouble preparing the case should get part of the fee. It is a very difficult question to decide by law, and I believe the only way to handle this would be according to a man's conscience. There is no way of making a gentleman out of a scoundrel, either by law or promise.

THE COMPREHENSIVE MEDICAL EXAMINATION*

By John W. Shuman, M.D., F.A.C.S.
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The comprehensive examination of the patient is the primary step in dealing with disease. To make a correct diagnosis the "snap-shot" diagnostician's method must be avoided and such diagnostic technic as the comprehensive examination of the patient demands employed. The greatest number of mistaken diagnoses occurs when an inefficient and insufficient examination of the patient is made. Hence the truism that in direct proportion to the thoroughness of the examination so will be the correctness of the diagnosis.

The majority of diseases are comparatively easy of diagnosis, but it is the exception that proves whether our diagnostic technic is correct or faulty. A mistake in one case will take away all the glory that we may have amassed from the other ninety-nine. It should be our aim to follow a routine manner of examination and study which will lessen mistakes in diagnosis. Our aim should be, first, to take a careful, methodical, and complete history; second, to make a searching, thorough, and painstaking physical examination; third, to use all clinical laboratory methods of precision necessary; and fourth, when necessary, to consult with our conferes,—the general and the eye, ear, nose, and throat surgeons; the genito-urinary specialist; the doctor of dental surgery; etc., that is, to do team-work to the end,—a better medical game.

1. *History Taking.*—This should be constantly practiced, for it is vastly important. The facts should be placed upon a history card for record,—sex, age, social status, occupation, etc. Previous illnesses play important parts in the causation of disease.

2. *Physical Examination.*—The patient should be examined from the hair to the toe-nails, and all abnormalities found made mention of on the examining card: the nutrition, if good, poor, or cachetic is to be considered; the skin, if dry, moist, velvety, or pigmented; if dilated veins are present; if the cervical, axillary, postauricular, epitroclear, or inguinal glands are enlarged; etc. These details are mentioned to illustrate how carefully the physical examination should be made. The head, neck, thorax, abdomen, and extremities should be examined in just as thorough a manner.

3. *Special Examination.*—This calls for examination of the twenty-four hours' urine, the blood, the sputum, and the feces. As a routine the urine and blood should always be analyzed. For this a trained technician is advisable for the very good reason that the work is always done, and "short cuts," for example, a "sink test" of the urine, avoided. Any abnormalities are detected by the technician, and when brought to the notice of the physician he will observe and study the same. A Wassermann test should be a routine measure in all obscure cases. A routine urine, blood, and fecal analysis permits fewer diabetics, nephropaths, intestinal parasites, and anemias or leukopenias to go unrecognized.

4. *Smears and Cultures.*—Bacteriologic examination is essential in acute infections of the upper air passages, especially if a "membrane" is present. A discharging sinus calls for a microspic examination, as also does urethritis, pyuria, etc. Blood culturing has but a small place in the every-day routine medical diagnostic work.

5. *Paracentesis.* — Spinal canal, thoracic (pleural and pericardial) and abdominal cavities, and joints frequently need an exploratory puncture and the removal of some of the fluid, when present, and an analysis of the same. No puncture should be made unnecessarily.

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*Presented before the Sioux Valley Medical Society, Sioux City, Iowa, January 23, 1921.

6. *Tuberculin Test.*—In a tubercular suspect the plan should be followed of using 1 c.c. of 1-10,000 solution of old tuberculin, injected subcutaneously. It is well known that the positive von Pirquet test is of great value in patients under six years of age, and the negative von Pirquet is of great value in those over six years of age.

7. *New Growths.*—Any tumor formation in which the diagnosis is at all doubtful demands sectioning and a reliable microscopic examination. Some assert that "such a procedure is dangerous, and liable to spread cancer cells." It is most dangerous to the business of a doctor who would claim a "cure of a malignant neoplasm by radium, *x*-ray, or paste," when that neoplasm was benign instead of malignant.

8. *Cystoscopy.* — A cystoscopic examination is necessary for all patients suffering from pyuria, hematuria, or allied conditions.

9. *Röntgenology.* — With the aid of the Röntgen ray, sinuses, teeth, chest, and the skeletal bones can be studied for pathology, also the genito-urinary tract and gall-bladder region. With the aid of barium sulphate the gastro-intestinal tract can be studied. No gastric examination is complete without the use of the *x*-ray. Just so long as we withhold from our patients the necessary technic in examination on account of expense or what not, just so long will ill health be endured, and needless and injurious exploratory operations be performed.

In conclusion, if the case is an operative one, the diagnostician should attend the operation so that he may personally check his diagnosis. Should the case prove fatal, all reasonable efforts to secure an autopsy should be made. Notes should be dictated at the time of the autopsy or the findings written up soon after the operation, so that a full and complete record of the case is secured. We should play the game to the end.

These should be our methods of every-day work, and, although it does not yield "100 per cent perfect," I know that far less has been overlooked by this manner of examination than if the "buck had been passed" or only guess work employed. In all instances it is the history of symptoms, the physical signs evident to the senses of sight, hearing, and touch, and studied observation of the patient, augmented by the evidence of the laboratory, that make our diagnoses more than a mere guess.

For a brief guide in medical examination the reader is referred to "Outline for History Taking and Physical Examination," Medical Clinics, Allegheny General Hospital, Pittsburgh, Pa., Dr. James McKelvey, 1910. (This is a small 8-page pamphlet.—The Editor.)

THE BLOOD-CLOT AS AN ADJUNCT IN MASTOID OPERATION*

By L. L. Henninger, M. D.

COUNCIL BLUFFS, IOWA

The technic of the mastoid operation has been so frequently described and all its angles so thoroughly discussed that to attempt to offer anything new in this field would seem like a forlorn hope. In presenting what to some is an old and discarded as impractical procedure, I do not make any claims for originality. I refer to the use of the blood-clot in closing mastoid wounds. I do not know who first advocated this short-cut in mastoid surgery, but, certain it is, it has had its advocates for many years. It would be too much to say that it has been generally tried and abandoned. It has its warm advocates still, in selected cases. Is it practical and to what extent are we justified in attempting its use?

In a series of 32 cases attempted since my return from the service, August 1, 1919, I submit the following results: 12 perfect results with no packing or subsequent dressing other than for protection; 8 cases that could be classed as partially successful, for there was but a small amount of a brownish liquor for a few days from the inferior angle of the wound and from the external auditory meatus: no tube or packing was used and the depression on healing was slight. In 12 cases the breaking down of the clot was complete. In three or four of the latter cases, it has been possible to clot at a later period when the wound had become sufficiently sterile by subsequent dressings and treatment, but this was not attempted in all. It goes without saying that it is not advisable to attempt the clot in all cases, certainly not at the original operation. For instance, if the infective agent is found to be a streptococcus hemolyticus, it would seem to be more than useless to attempt to close the wound so tightly and expect no breaking down of the clot. At the time that some of these operations cited were done, laboratory facilities were not easily available. In the light of a better knowledge of the bacteriology of some of these cases, probably certain of them would not have been attempted. I have seen but one or two cases, however, where I thought that harm had resulted from a failure in attempting the clot. Careful watching of the wound appearance and the temperature chart will warn of impending failure. The wound should be immediately opened and the contents evacuated in such a case. A tube inserted, as elsewhere described, will answer the purpose of securing further drainage, and no time is lost to speak of in the further progress of the case.

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*Presented before Sioux Valley Eye and Ear Academy at Sioux City, Iowa, January 24, 1922.

Three of the above cases were selected as being of special interest.

Case 1—E. M., of Missouri Valley, was referred to me April 29, 1921. The patient had been operated on for acute mastoiditis in January of the same year in another city. For some reason the wound would not heal and the purulent discharge from a sinus behind the left ear persisted, irrigations and drainage having been kept up until the time the lad was allowed to return home which was a short time before I saw him, April 30, 1921.

Examination showed a discharging sinus from the mastoid wound, but the pain was slight, and there was no fever. I sent him to the hospital, and, on re-opening the wound, I found many of the tip cells with pus and granulations remaining. After making a thorough exenteration, the cavity was allowed to fill with blood, and the wound was closed with clamps. There was no rise of temperature following this procedure. The clamps were removed on the third day. On the fifth day the patient was allowed to return home. Inspection of the region of the mastoid ten days later showed the clot firm, with no discharge, either from external ear or the mastoid wound. No organisms were found in the smear I sent to the laboratory at the time of the operation, and no culture was made.

Case 2—D. W., boy, aged 4, was operated on for acute mastoiditis May 31, 1920, by another surgeon. The wound healed promptly at the original operation, but the ear kept up a discharge persistently.

On March 23, 1921, the child was taken sick and two days later developed pain in the opposite ear and increased discharge from the originally infected ear. Myringotomy was promptly done in both membranæ tympani but symptoms of an acute mastoiditis rapidly developed in the right side and almost simultaneously swelling over the area of the previous operation on the opposite side with some pain and fluctuation. March 28, or nine months subsequent to the first mastoidectomy, I operated on both mastoids. The right side showed complete involvement; cell development was extensive. The left side, which had been discharging through the external ear for nine months, showed a subperiosteal abscess, and the interesting part of this was that a fistulous opening was found leading from the middle ear back into the zygomatic process for the space of nearly one inch with pus exuding. This accounted for the persistent discharge following the first operation. This was thoroughly opened and curetted clean. Both sides were closed over blood clots with complete success as no packing or drain was subsequently required in either case.

Case 3—V. H., a young woman, aged 16, a resident of Council Bluffs.

She had a typical onset, middle ear involvement followed by mastoiditis. At the time of operation there were edema and swelling over the affected area and considerable pain. At the time of operation the involvement of the mastoid was found to be complete, and much pus from it, apparently under some pressure, presented immediately upon opening the mastoid cortex. A short chain of streptococci was shown by smear and also by culture to be the infecting agent. I clotted this case with some misgivings, but the subsequent healing was uneventful, the clot remained firm and the cosmetic effect is perfect.

The following factors favor the success in this operation:

1. Absolute necessity of removing all cells and diseased tissue.

2. Scrupulous cleanliness in preparation of the area for operation, also in the various steps in the operation itself. A slight fault in technic may mean the difference between success and failure.

The blood-clot operation has the following features to recommend it:

1. Saving of time to both doctor and patient.

2. Saving of expense to patient, as the time in the hospital is much reduced.

3. No painful dressings, which is no small advantage in the case of children.

4. Practically no disfigurement, there being very little depression and practically no scar in the successful operation.

In regard to those not favoring this operation: There are a great many surgeons who do not use gauze packing in the mastoid wound, but employ rubber tubing instead, gradually withdrawing same as the wound cicatrizes and fills in. I have found this to be a good substitute in cases where I do not care to attempt the clot operation. It recommends itself especially in the case of children, and the cosmetic results are much better than where the more open method of packing is employed.

INTERESTING COURSE OF A NEEDLE AS A FOREIGN BODY

By P. A. Nestos, M.D.

MINOT, NORTH DAKOTA

Mrs. E. R., aged 24, consulted me on March 31, 1922.

Complaint: Pain in the epigastrium and headache.

Past history: Her past history is of no particular interest with the exception of hysteria, from which she has suffered periodically during the past five years. These hysterical attacks have manifested themselves by periods of profound sleep, from which she could not be aroused, and would last from one-half hour to five hours. Sometimes she would sleep peacefully through the attack and look perfectly normal. At other times she would be boisterous and fight anyone who chanced to come near.

Three years ago she insisted on having a chronic appendix removed. She had no hysterical attacks for about six months. One year ago she was operated on for uterine prolapse and experienced another six months of freedom from her former spells.

Present history: About March 15, last, she was doing some sewing. She is in the habit of keeping needles in her mouth while so occupied or sometimes even while dressing herself. On the date mentioned she states she swallowed a needle. She tried to recover it by coughing and vomiting, but was unsuccessful. She took a dose of castor oil, and as she did not feel any further pain she soon forgot about the accident. About ten days later she began to experience a sensation of pain in the stomach and naturally recalled her experience with the needle. The pain she described as sharp and stinging or pricking and was associated with headache for about thirty-six hours.

Examination: I made a cursory examination, which revealed no cause for the headache and no palpable pathology of the stomach. She had no rise of temperature, and her pulse and respiration were normal. I suggested an *x*-ray examination to which she submitted. The film was looked over and nothing found. However, the picture was not a very good one because of over exposure, and so the patient was told to return the next day. The second picture was excellent, but no needle could be seen. I thought she probably had never swallowed a needle at all and that her story was another manifestation of hysteria. She was told to report any new developments.

As the patient was about to leave the office she complained of feeling dizzy, and I advised her to lie down and rest a little. About twenty minutes later she felt well enough to start for home. Half way down the stairs she fell in a heap and could not be aroused. She was profoundly unconscious and had to be carried to a taxi and taken home, where she recovered in about one hour.

About twelve hours later I was asked to call at the home of the patient. As I entered she said, "I am not as crazy as you think; here is the needle." Three inches below the ensiform and one inch to the right of the median line, about one-eighth of an inch of the eye end of the needle protruded through the skin. I caught it with an artery forceps and pulled it out. The needle measures about one and one-half inches in length, and by oxidation bears evidence of its travels.

A second look at the *x*-ray picture, this time without the prejudice of hysteria, shows the needle very clearly near the upper edge of the picture. Originally this was thought to be a scratch or some other defect.

In view of the fact that the patient had no pain at first it would seem most natural that the needle passed at once into the stomach, then through peristalsis it continued through the anterior wall of that organ. It is hard to understand because of the shifting position of the stomach how it could enter and penetrate the abdominal wall in such a location, and it is equally interesting that it should emerge through the skin, blunt end first.

I consider the case of unusual interest because of the foreign body, and instructive in the fact that one is often apt to jump at conclusions.

THE
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The Official Journal of the
North Dakota and South Dakota State Medical Associations

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JUNE 15, 1922

THE AMERICAN MEDICAL ASSOCIATION MEETING

The seventy-third annual session of the American Medical Association, held at St. Louis, began on May twenty-third and ended on May twenty-sixth. Some of the allied societies, however, had meetings on Monday, May twenty-second, which were attended by a sufficient number of men to make it interesting.

The total registration for the first day was over 2,000, and the total registration for the entire meeting was approximately 5,200, the third largest registration in the history of the Association. Minnesota sent its usual quota. Out of 91 registered from this state, 72 came from three of the largest cities. Minneapolis contributed 35, St. Paul 11, and Rochester 26. Missouri, in honor of the Association's meeting, registered 1,367; and the surrounding states contributed their full quotas.

This meeting was held in St. Louis evidently for the purpose of arousing a keener interest in the American Medical Association in the Southwest. Doubtless it is necessary to go away from the larger cities and into some of the smaller ones for the purpose of stimulating the men who live in the Northwest, South, or West.

Secondly, to impress the people with the fact that a very large and powerful medical organization meets with a definite and deep-seated purpose in mind, namely, to advance the cause of medicine and surgery through scientific channels.

The man who has been in attendance for years may sometimes wonder why he is whisked from one part of the country to another, and why there is not a central location at some point where everyone can meet and participate and where the head office of the Association can be maintained. The fact of the matter is that very few cities are prepared to take care of a meeting of the American Medical Association, and this was illustrated in St. Louis. There were hotel facilities enough, perhaps, but the meeting-places were so far away from the center of things that it required a good deal of time to go from one meeting-place to another or to get from one's hotel to a meeting-place.

The next meeting of the Association is to be held in San Francisco, at a time to be determined by the trustees. Five cities invited the Association to meet with them: Washington, Atlantic City, Chicago, New York, and San Francisco. It was quite evident in the House of Delegates that the San Franciscans were determined the meeting should be held in their city. The usual climatic conditions were enlarged upon, but the argument which evidently bore the best fruit was the fact that they have in San Francisco a municipal building large enough to house the entire Association,—its business offices, and scientific exhibits, and all of its Sections,—under one roof, thus making it possible to go from one Section to another within a few minutes. Every large city that expects to entertain the American Medical Association, or any other society, should have this kind of a building as a foundation for its invitation. In the smaller cities the hardship of entertaining such a large body of men is becoming a great burden. We think that no confidence is being violated when it is stated that it cost St. Louis, $18,000 to entertain the Association this year.

The House of Delegates had a great deal of work cut out for itself, and the speaker of the house, Dr. F. C. Warnshuis, of Grand Rapids, Michigan, kept the House in perfect order. He was quick and right in his decisions, and pushed the business along in his usual active manner. There had been a report that there would be more or less opposition in the organization at St. Louis, but none developed. If it was in the air it was dissipated by the heat. If it was in the House of Delegates it showed its head only for a short time. There were minor changes in the

Board of Trustees. Most of the members, however, were re-elected. The president-elect, Dr. Ray L. Wilbur, President of Leland Stanford University at Palo Alto, was a good selection. He has had much to do with the educational problems of the country, and had a great deal to do with the war commission in Washington. He is recognized as an able and scholarly man, although he has not been in general practice for a number of years.

The usual thing in such large meetings happens always. The opening meeting is in some large room or barn-like theater, and not infrequently the presiding officer or the speaker of the evening has a voice that carries ten feet, more or less, making it absolutely impossible for the people who crowd these meeting-places to hear. There ought to be some remedy for this sort of thing, and perhaps it will be found in the coming radio system or in the use of amplifiers The man in attendance has some rights, and if he goes into a large, crowded, hot room, and perspires for two or three hours, he is entitled to some benefits for his overactivities. Then, too, there are a great many men who know nothing about speaking in public. They speak from manuscript and to the manuscript, scarcely raising their voices or even their heads, so that their voices either have no carrying power or their enunciation is so bad that no one can understand what they are saying. Although the president is selected for his ability as a medical man, he ought to be looked over by a board of experts to see whether he is going to make a presiding officer. The same things happen in the Section work. A man gets up to read a paper, and he mumbles and evidently suffers from dysarthria, and he has no lung capacity, or perhaps the room in which he is speaking is very badly constructed. At all events, there are but few men who know how to talk to an audience, and this was demonstrated at this meeting.

Dr. Alexander R. Craig, Secretary of the American Medical Association, outlined the motives behind the organization, which are herewith quoted:

> To unify opinions and discoveries. All advances in medicine are the fruit of endless and untiring research. Yet none of the discoveries were a practical thing before the great medical minds had threshed out the undesirable and impractical features, and the theory had been tried and proven to be successful in every possible contingency. In the clinics and the lectures which have been arranged for this session I am certain that many theories regarding new discoveries and improvements upon old methods will be advanced. The greatest minds will be focused upon the topic, and suggestions made that will insure the success or the failure of the project. The theorists themselves will see their subjects in varied lights, and those conducting the research will have new channels through which to direct their efforts.

RESOLUTIONS OF THE HOUSE OF DELEGATES

Some very stringent, as well as conservative, resolutions were introduced at various times in the House of Delegates. Strange as it may seem, one of them was recommended by the Board of Trustees, "that the American Medical Association officially brings to the attention of Congress the amendment of the Volstead act to provide for the storage and sale of whiskey for medicinal purposes by the federal Government." The resolution was so framed that it went through without a quiver, and with a perfectly serious intent, for the resolution was introduced with the full knowledge that the Volstead act had, for the time being at least, increased the consumption of all kinds of so-called liquor, and the doctors felt it about time the Government took hold of the work from a different angle. Whether this will affect Congress or not is a doubtful proposition. They may look upon it as an opportunity for physicians to write more prescriptions, and the public at large know that they write enough as it is. But under more direct federal control it would be possible to prescribe whiskey when it was really necessary, although a large proportion of the profession believe that all these stimulants are unnecessary in the practice of medicine.

A second resolution was an act "to disassociate the American Red Cross and its public-health activities." To this the Red Cross agreed, but apparently has not as yet modified its public-health program. The committee on health problems in education suggested that an annual meeting with the Medical Association and the State Teachers' Association be held, to discuss health problems in public schools. A rather unexpected resolution was introduced condemning the Shepard-Towner act. Someone suggested that it was nothing but a socialistic doctrine and was passed without proper discussion. There must be a great deal of discussion for and against the act,—whether it is socialistic or not, because it seemed to have sufficient weight to sway one side or the other,—and out of such a discussion some good must come. However, the resolution against the Shepard-Towner act was passed.

There was an attempt made, in a resolution, too, that called on all forms of government,—national, state, and municipal,—to restrict their medical activities to education, preventive measures, care of the indigent sick, and the establishment of health centers. This was evidently done with the idea that there are too many organizations that are overlapping in the public-health work. It was felt that there ought to be a public-health bureau in Washington to advise congress on medical matters. This resolution had been introduced before, but has always been defeated.

One resolution, which will perhaps pass as the most important of its kind, was that the Association conduct a survey of pay-clinics and group-practice, so that principles and policies best designed to protect the general practitioner and the public may be devised. There was so much feeling about group-practice in the Association, particularly where several specialists in one office are giving specialized treatments, that it aroused a storm of discussion. As a counteraction there was formed an organization to be called the Association of Group Clinics of North America, an independent medical organization, to include specialists who are practicing so-called group-medicine or in clinics. This association will not be connected with the American Medical Association, nor will it be opposed to it, but it will function as an independent order for medical specialists. Dr. T. H. Halsted, of Syracuse, N. Y., was elected president; Dr. Southgate Leigh, Norfolk, Va., vice-president, and Dr. A. Philo Howard, Houston, Tex., secretary. This organization and the resolution calling for a survey of clinics and group-medicine are going to stir up more or less trouble, unless it is carried on in the proper spirit; and no one knows where it will end when the survey begins. If it eliminates the cheap "clinic" man, or the man who offers to cure for a dollar, it will not meet in vain; but if it entertains the theory that the group-clinics are going to lie down without opposing the movement, it will arouse a great deal of feeling. Group-medicine has its place, and there are any number of group-clinics that are conducted in a perfectly ethical manner. There are a few that are not, and, if these few may be eliminated, the action of the House of Delegates is good. There is no doubt that some men who have grouped themselves together are doing it largely for the financial end of things. But to attack all group-medicine for this reason is an unwise procedure. We want nothing done that is going to split up the family of medical men or to divide the American Medical Association needlessly.

Suggestions by the Council as to medical education included the re-organization of the curricula of medical schools in order to turn out thoroughly trained general practitioners rather than specialists. It furthermore suggested that hospitals be established in rural communities, which has been discussed in our columns before. This in itself is a very valuable suggestion, and it ought to be carried out in every state. There seems to be a general feeling, too, that the ultra scientific methods were losing in the community, and a return to more practical and common-sense methods was desirable.

The St. Louis County Medical Society sent in a resolution against the training of 250 former service men in schools of chiropractic. This has been sanctioned by the Government, while if the Government had offered to train these men in massage and Swedish movements and other recognized methods of therapy there would have been no objection raised. But what can one expect of a Government whose main function is to waste time rather than investigate the real needs of the public?

STANDARDIZING PROFESSIONAL MORALS

This is a rather delicate subject upon which to write an editorial, but, as it refers mainly to educational problems, it applies to an education of the moral side of a profession.

The Hennepin County Medical Society, through a very strong committee, is endeavoring to put before the people certain matters which pertain to the healing art, and it is evidently designed to furnish suitable information to be published either as general letters or, as we may fondly hope, to secure the aid of the press in disseminating knowledge. This is not so easy a matter as it may appear, for the press is rather inclined to ask for something sensational or dramatic. While the effort of the Hennepin County Medical Society is a serious matter, the press may be induced occasionally to print something that is prepared by the publicity committee of the Society.

To do this sort of work, particularly the collection and classification of data which relate to the history, activities, and ideals of the medical profession, is something which is difficult unless undertaken by a determined body of men, and this, we feel sure, is the function of this committee. It means the employment of a whole-time secretary and other clerical assistants, the subscription to and use of a clipping bureau, and the defraying of such expenses as are necessary to carry out a vigorous and efficient program. This means expense, and to that end the members of the Hennepin County Medical Society are solicited to contribute money for this service.

It is distinctly understood that this is not an attempt to decry or expose, or deride, any sect or cult who think they are practicing the healing art. It is simply to state the efforts of medical men who are determined to place before the people evidences of the sincerity of the medical practitioner,—his honesty, his loyalty to himself and to his fellow-men, and a certain high standard of public morals. The dissemination of truth, worthy aspirations, and other allied activities are not easily impressed upon the public mind, for somehow the lowering of the standard of the public has reached that degree of disintegrating morale that they do not care for that sort of thing. The principle of this purpose of the Hennepin County Society (and we hope of all other like societies) is right, and it is the beginning of a decidedly normal purpose, with the hope behind it all that it will accomplish some good. It takes note of the fact that practitioners who are careless in their examinations, investigations, and conclusions can do more damage to the medical profession by such methods than can be overcome by the work of many of the careful members of the Society. The men that have justly been criticized are sometimes among those who bear a reputation of being efficient and who enjoy a high standing in the community. It is not infrequent that these so-called reputable men are not following out the standards that they formerly set for themselves in keeping up to the reputation they have acquired. There is still a great deal of jealously in the profession and there are some men who are a little bit careless about their association with their fellow-men. Their consultation work means the stealing of a case by bold and determined methods. This is very reprehensible, and is lowering the morale, again, of the whole profession. Then, too, there are men outside of the Society who do bad work, and these men cannot be reached except by charges preferred against them in court, and that is one of the things that the medical man hesitates to do.

Every encouragement should be offered this committee, and every man in the Hennepin County Society should heartily co-operate in spirit, in attitude, and in the furnishing of information that will be of benefit to his fellow-practitioners or to the community.

THE NORTH DAKOTA STATE MEDICAL ASSOCIATION MEETING

The recent meeting of the North Dakota Medical Association, at Jamestown, North Dakota, on June first and second, called together about 150 practitioners. The program presented was of exceptional merit and showed, as has been shown before, that the medical men in North Dakota are wide-awake and are keeping in touch with things medical and surgical. North Dakota is not behind, either, in its affiliated societies. The Society of Ophthalmology and Oto-Larngology, had a meeting, in a different hall, on the first day of the opening session.

North Dakota is, in one way, a little in advance of some of the other states in its selection of officers. It has copied the method of the American Medical Association and elects a president and a president-elect.

The Council and the House of Delegates met and discussed the needs of the Association and decided its questions of policy. The House of Delegates is made up of representative men from all over the state, just as is done in other states, and, considering the medical population of North Dakota, the House of Delegates seemed to the writer to be unusually well attended.

The medical program was carried out with precision and earnestness and the papers were very freely discussed.

The social side of Jamestown was shown at its best by a banquet, which was held on the evening of the first day, not at a hotel, but in the Elks Hall, provided by a caterer who had as assistants many of the women of Jamestown. It was a very delightful affair; and the medical men of Jamestown paid the bills, rather contrary to what is usually done when a state organization is being entertained. The common and accepted custom nowadays is for each man to pay for his own dinner rather than burden his medical brethren with a large sum when, if divided up among 150, it would work no hardship. But Jamestown evidently has pride, or had, in doing things as they saw it from the point of hospitality. Simply because some other city in North Dakota charged three dollars a plate is no reason why Jamestown should not open up its purse to entertain a large number of guests.

Jamestown, too, is the center of a medical clinic, called The Jamestown Clinic. They have spacious offices, a long corridor, and a library. And the men who were interested enough to inspect the clinic were amply rewarded for their visit to the library. The editor was there, and he remembers that he met groups of medical men coming and going, and all apparently very much pleased with their tour of inspection.

CAN YOU BEAT IT? WHAT NEXT?

The following letter, which was recently received by a South Dakota physician, was sent to THE JOURNAL-LANCET with the simple comment, "What Next?"

DRS. IVEY & IVEY
Chiropractors
Palmer Graduates
CLAYTON BUILDING—PHONE 38

Mobridge, S. D., Feb. 2, 1922.

Dear Doctor:

Several physicians whose patients have failed to respond to medical treatment have sent such patients to me for chiropractic adjustments.

I believe this is good ethics as well as good practice

Your patient comes to you for health. He looks upon you as a health advisor, a friend as well as a physician. You retain his faith and his loyalty by guiding him to health.

Particularly is his belief in your unselfish devotion to his health increased, when you recommend a method which sends him outside your office.

There is no question but what in the popular mind of today the physician is regarded as the all-around health advisor, and the chiropractor is simply a specialist.

You can retain that authority and possibly prevent much shopping around for health, much dissatisfaction with physicians such as I constantly hear, by considering the advisability of my suggestion in cases showing spinal subluxations or symptoms of subluxations.

Respectfully yours,
IVEY & IVEY, D. C.

Our correspondent, apparently at least, pays us the common compliment of assuming that a medical journal knows all that is known and some things that are not known; and we extend our thanks for this compliment.

Fortunately, we can maintain our reputation in this case, for the answer to the question was recently furnished by another chiropractor.

"What Next?" A death certificate written upon the model of one filed with the South Dakota State Board of Health as follows:

MEDICAL CERTIFICATE OF DEATH

17 I HEREBY CERTIFY, That I attended deceased from Nov. 9, 1921, to Nov. 12, 1921, that I last saw h.... alive on Nov. 12, 1921, and that death occurred on the date stated above, at................m.

The CAUSE OF DEATH* was as follows:
Tubeclerluses of the Hipe and
spred tru the Hol Sistum
...., duration
.......yrs. .... mos. ....days.
CONTRIBUTORY ....
(Secondary)
18 Where was disease contracted
if not at place of death? in Hipe
Did an operation precede death? no Date of......
Was there an autopsy? no
What test confirmed diagnosis? Tubercluses
(Signed) Dr. J. B. Fjerestad, D. C.
........., 19... (Address) Browns Valley, Minn.
19 Place of Burial, Cremation, or Removal
Harmon Twnp.
Date of Burial
11-15-21
20 Undertaker
Alfred H. Peterson
Address
Wheaton, M.

---

*State the Disease Causing Death, or in deaths from Violent Causes, state (1) Means and Nature of Injury, and (2) whether Accidental, Suicidal, or Homicidal.

NEWS ITEMS

Dr. A. E. Henslin, of LeRoy, is a candidate for coroner of Mower County.

Dr. H. R. Weirick, of Hibbing, is a candidate for the Minnesota State Legislature.

Dr. B. F. Simon, of St. Paul, has been reappointed Chief of the St. Paul Bureau of Health.

Dr. H. P. Holmes, formerly on the N. P. Hospital staff at Glendive, Mont., has located at Richey, Mont.

Dr. Rudolph Logefeil, of Minneapolis, was married last month to Miss Agnes Lunberg, also of Minneapolis.

Dr. B. O. Mork, of Worthington, has gone to Europe for work in the clinics of London and Continental cities.

The annual meeting of the Montana State Medical Association will be held at Great Falls on July 12 and 13.

Dr. J. C. Rothenburg, of Springfield, will be a candidate for representative at large from the Brown-Redwood district.

Dr. Godfrey Deziel, of Minneapolis, has gone to Europe, where he will visit the clinics of the European medical centers.

Dr. C. F. Dight, of Minneapolis, has written a pamphlet on race betterment, entitled, "Human Thoroughbreds." Why not?

Dr. J. A. Rippert has resigned from the staff of the Missabe Hospital of Proctor, and will engage in private practice in West Duluth.

The mid-summer meeting of the Southern Minnesota Medical Association will be held at Rochester next week (June 19 and 20).

The Outlook Community Hospital of Outlook, Mont., is to be re-opened after having been closed several months on account of the business depression.

Dr. J. J. Grassick, of Grand Forks, N. D., has been appointed by the Governor of the State on a council to co-operate with the State Board of Health.

Dr. Wallace H. Cole, of St. Paul, has been chosen chief surgeon of the Shriners' Hospital for Crippled Children now under construction in Minneapolis.

Dr. Adolph Lorenz, of Vienna, has written Dr. O. A. Oredson, of Duluth, that he may make another visit to America in the fall, and that he hopes to visit Duluth again.

The Tri-State Hospital Association, composed of hospitals in Minnesota, Wisconsin, and Iowa, which met last month in La Crosse, Wis., will meet next year in Minneapolis.

The supreme court of Minnesota has affirmed a verdict of $5,000 against a Minnesota physician, obtained in a lower court, for the neglect of a woman patient during confinement.

The State Nurses' Association of North Dakota, at its annual meeting in Fargo last month, resolved to have a 100 per cent membership of the nurses in that state. Why not?

The Hennepin County Medical Society, at its last meeting, fixed the minimum fee for expert testimony given before a commission appointed by a court at $50 for a half day or less.

Miles City, Mont., selected its health officer last month by competitive bids. The lowest bid was $50 a month, including medicine. Why not get the work done by absent treatments? They would not cost so much.

Dr. Clifford Sisler, of the City and County Hospital of St. Paul, and a recent graduate of the Medical School of the University of Minnesota, will be associated with Dr. M. M. Hursh, of Grand Rapids, after August 1.

Dr. W. A. Evans, of Chicago, the well-known syndicate writer on medical matters, was the guest of the Hennepin County Medical Society last week, when he gave an address before the Soci- and one before the Ladies' Auxiliary of the Society.

Dr. J. Warren Bell, of Minneapolis, has been East studying obstetrics under Dr. Potter, of Buffalo, and the Society of the Lying-in Hospitals of New York. He will limit himself exclusively to that specialty on his return, in about two weeks.

The number of physicians from this territory who registered at the St. Louis meeting of the A. M. A. last month is as follows: From Minnesota, 87; from Montana, 11; from North Dakota, 6; from South Dakota, 11. The total registration was 5,174.

Dr. Arthur S. Hamilton, of Minneapolis, was elected vice-president of the Central Neuropsychiatric Association formed at the recent meeting of the A. M. A. in St. Louis. Dr. Peter Bassoe, of Chicago, was elected president of the new organization.

At its annual meeting last month the South Dakota State Medical Association adopted a schedule of fees in workmen's compensation cases, which will apply in all the districts of the state. The schedule will appear in the transactions of the Association, soon to be published in our columns.

Professor Ernst Fuchs, of Vienna, has been in Minneapolis several days speaking several times on eye subjects before medical organizations of Minneapolis and St. Paul. Dr. Fuchs conducted eye clinics in the University of Vienna for over a third of a century and had in his classes many American students.

The New Samaritan Hospital, of Huron, S. D., was dedicated on June 1. The building is a handsome and commodious colonial residence building recently purchased from a wealthy resident. This is an open hospital and it will be greatly appreciated by the physicians of Huron who have no hospital facilities.

Dr. A. J. Moe, of the Moe Hospital, Sioux Falls, S. D., invited two hundred guests to help him celebrate his twenty-fifth wedding anniversary at "Green Acres," his country home, last week. Guests were present from three or four states. Dr. C. G. Cottam, president-elect of the South Dakota State Medical Association extended the congratulations of the medical men to Dr. and Mrs. Moe.

Mr. A. F. Holmer, for several years secretary of a Minneapolis branch of the Y. M. C. A., has become general superintendent of the Northwestern Baptist Hospital Association, and will have executive management of the Mounds Park Sanitarium and the Midway and Merriam Park Hospitals, of St. Paul. He was appointed at the request of Dr. George Earl, of St. Paul, president of the Association.

The Minnesota Association of Occupational Therapy was organized last week at the Glen Lake Sanatorium, when the following officers were elected: President, Dr. E. S. Mariette, Superintendent of Glen Lake Sanatorium; first vice-president, Miss Jessie Sauer, of St. Paul; second vice-president, Miss Julia Bradley, Fergus Falls; secretary-treasurer, Miss Gracia Loehl, of the Glen Lake Sanatorium.

A clinical bulletin, including all hospitals, covering medicine and surgery in all branches and specialties, is issued each day by the Hennepin County Medical Society for the information of local and visiting physicians. Anyone may arrange with the Hennepin County Medical Society to have these bulletins sent to him at his residence or hotel, at a charge of fifteen cents per bulletin. All physicians are welcome at all of these clinics.

Dr. W. F. Cogswell, secretary of the State Board of Health of Montana, announced that Surgeon General Cummings, of the U. S. Public Health Service; Dr. Anna Rude, of the Children's Bureau at Washington; Dr. A. J. Chesley, executive officer of the Minnesota State Board of Health; and other distinguished health officials will attend the annual meetings of the Montana Public Health Service and State Medical Association on July 10-12 at Great Falls.

Dean E. P. Lyon, of the Medical School of the University of Minnesota, recently made an inspection of and report upon the Kansas University Medical School for the Board of Administration of that State. This was part of a survey of the entire educational system of the state. Previously to this Dean Lyon acted as a member of a committee to inspect and make recommendations on the Detroit (Michigan) College of Medicine and Surgery. This school is the only medical college in the country conducted by a City Board of Education.

In addition to the list of distinguished medical men drawn to Great Falls, Montana, on July 10-12 by the meeting of the Public Health Association, the following well-known physicians and surgeons will present papers at the meeting of the State Medical Association: Dr. Joseph G. Bloodgood, of Johns Hopkins; Dr. Dean Lewis, of Rush Medical College; Dr. L. G. Rowntree and Dr. R. D. Carman, of the Mayo Clinic; Dr. F. C. Rodda, of Minneapolis; Dr. E. M. Hammes, of St. Paul; Dr. Archibald McCannel, of Minot, N. D.; and others.

The fifth annual meeting of the North Dakota Academy of Ophthalomogy and Oto-Laryngology was held at Jamestown, N. D., on June 1, when papers were read by the following physicians: Dr. Elizabeth Rindlaub (president), Fargo; Dr. John A. Pratt, Minneapolis; Dr. L. A. Schipper, Bismarck; Dr. A. D. McCannel, Minot; Dr. M. B. Ruud, Grand Forks; Dr. G. Golseth, Jamestown.

A "committee of thirty," to be known as such, was appointed last month by the citizens of Wadena, who have "resolved" to build a commodious hospital for that city. The headquarters for the campaign will be in the rooms formerly occupied by the Hat and Gift Shop, which sounds like an appropriate place.

The Thirty-fifth Annual Meeting of the North Dakota State Medical Association

The North Dakota State Medical Association held its thirty-fifth annual meeting in Jamestown on June 1 and 2, with a good attendance. The papers on the program were of a practical nature, and most of them elicited considerable discussion.

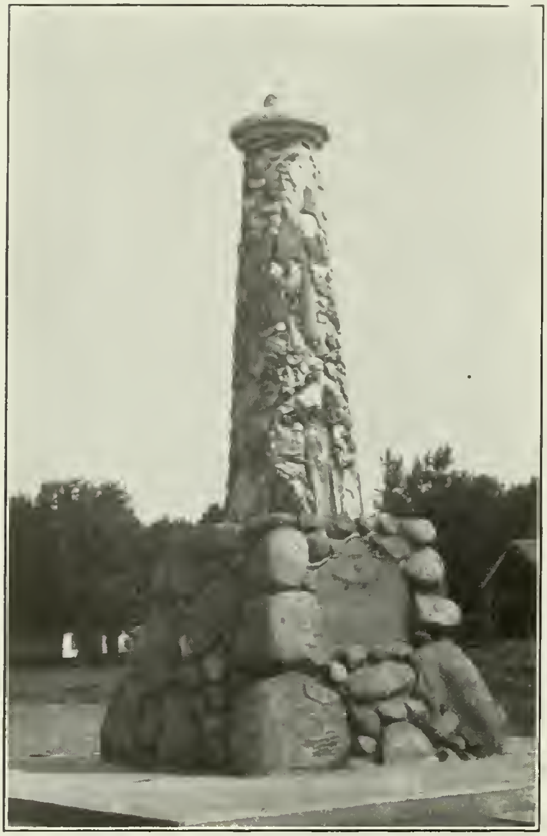
The business meetings were harmonious and showed an excellent spirit of co-operation. The Association has big problems to deal with, and it has men of big ideas to carry on its work.

Dr. J. P. Aylen, of Fargo, acted as toastmaster, which seems to be his specialty in which he is unexcelled.

The officers elected are as follows: President, Dr. E. P. Quain, Bismarck; president-elect, Dr. James Grassick, Grand Forks; first vice-president, Dr. W. C. Fawcett, Starkweather; second vice-president, Dr. J. H. Rindlaub, Fargo; secretary, Dr. H. J. Rowe, Lisbon; treasurer, Dr. W. W. Wood, Jamestown; delegate to the A. M. A., Dr. E. A. Pray, Valley City; alternate delegate, Dr. A. A. Whittemore, Bowman.

The next annual meeting will be held at Grand Forks in 1923.

Memorial to Dr. Francis H. Schoonmaker



On Decoration Day the citizens of Arlington, S. D., a mere village, unveiled a beautiful monument, of which the above is a photograph, erected to the memory of their beloved physician and friend, Dr. Francis H. Schoonmaker, who died two years ago.

The base of the monument is seven feet square and five feet high, and is built of native stone. The upper part is three feet in diameter and is constructed of specimens from the Black Hills. The bronze tablet in the base has a picture of Dr. Schoonmaker and the following inscription:

A TRIBUTE OF LOVE AND HONOR TO FRANCIS H. SCHOONMAKER

BY THE CITIZENS OF ARLINGTON AND COMMUNITY TO WHOM HE GAVE A LIFE OF SERVICE

1858-1917

Dr. Schoonmaker graduated from Northwestern University Medical School in the class of 1887 and practiced here in Arlington for thirty years. He was a typical physician of the old school; a family physician, loved by all, hated by none. His only fault was the same as that of all other physicians of his type; he was better to his patients than he was to himself.

N. K. Hopkins, M. D.

MINNEAPOLIS OFFICE FOR RENT AFTERNOONS

A general practitioner will rent his office for afternoons to a young surgeon. Office is fully furnished and equipped and is in one of the best physicians' buildings in the city. Rent reasonable. Address 248, care of this office.

LABORATORY TECHNICIAN WANTED IN MINNEAPOLIS

Experience desirable but not essential. Address 251, care of this office.

PHYSICIAN WANTED FOR JULY AND AUGUST

A substitute physician for practice in North Dakota during July and August. Address 250, care of this office.

EXCELLENT LOCATION IN MINNEAPOLIS FOR PHYSICIAN

Best transient office in city. Downtown, easily accessible, excellent space, well arranged, finely furnished, complete equipment, no competition. Located on a busy corner; and a $500 per month cash business can be done from the start. For a physician who wishes to locate in the city and make more than a living from the start this office and practice cannot be beat. Present lessee has entered government service. Will sell or lease all or part of furniture and equipment. Address 249, care of this office.

ST. PAUL OFFICES FOR RENT

There is a splendid location for physicians and dentists at the corner of Rice Street and University Ave., St. Paul. This is an active business center for a large and prosperous section of the city. Collections are excellent for these times, and the outlook is excellent. Address Capitol Drug Co., 481 Rice St., St. Paul.

PHYSICIAN'S RESIDENCE AND PRACTICE FOR SALE IN ST. PAUL

The widow of a recently deceased physician in St. Paul offers her home, etc., for sale. House has six living and two office rooms and is thoroughly modern. It is located in a rapidly growing part of the city with splendid street car service. A new physician in this location can start with a good cash practice and build up rapidly. Address 245, care of this office.

POSITION AS SECRETARY OR STENOGRAPHER

Wanted, a stenographic or secretarial position in a physician's or surgeon's office by a young lady of refinement and exceptional ability; six years of teaching experience and three years of office training, including one year of secretarial work in a clinic. Speedy typist, accurate, and dependable. Would be willing to assist in any work that may better qualify me as a medical assistant. Address 246, care of this office.

THE JOURNAL-LANCET

Represents the Medical Profession of

Minnesota, North Dakota, South Dakota, and Montana

The Official Journal of the

North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

New Series
VOL. XLII | MINNEAPOLIS, JULY 1, 1922 | No. 13

TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION—FORTY-FIRST ANNUAL MEETING

1922

OFFICERS AND COMMITTEES

PRESIDENT

G. G. COTTAM, M. D.	Sioux Falls

FIRST VICE-PRESIDENT

F. E. CLOUGH, M. D.	Lead

SECOND VICE-PRESIDENT.

R. L. MURDY, M. D.	Aberdeen

THIRD VICE PRESIDENT

W. R. BALL, M. D.	Mitchell

SECRETARY-TREASURER

R. D. ALWAY, M. D.	Aberdeen

COUNCILOR—FIRST DISTRICT

J. F. D. COOK, M. D.	Langford

COUNCILOR—SECOND DISTRICT

A. EINAR JOHNSON, M. D.	Watertown

COUNCILOR—THIRD DISTRICT

C. H. R. HOVDE	Madison

COUNCILOR—FOURTH DISTRICT

T. F. RIGGS, M. D. (Chairman)	Pierre

COUNCILOR—FIFTH DISTRICT.

L. N. GROSVENOR, M. D.	Huron

COUNCILOR—SIXTH DISTRICT

FREDERICK TREON, M. D.	Chamberlain

COUNCILOR—SEVENTH DISTRICT

F. ISRAEL PUTNAM, M. D.	Sioux Falls

COUNCILOR—EIGHTH DISTRICT

J. P. ISAAC, M. D.	Freeman

COUNCILOR—NINTH DISTRICT

J. M. WALSH, M. D.	Rapid City

COUNCILOR—TENTH DISTRICT

J. C. WATERMAN	Burke

COUNCILOR—ELEVENTH DISTRICT

N. K. HOPKINS, M. D.	Arlington

MEMBER OF HOUSE OF DELEGATES, AMERICAN MEDICAL ASSOCIATION

J. B. VAUGHN, M. D.	Castlewood

ALTERNATE

A. J. MOE, M. D.	Sioux Falls

HOUSE OF DELEGATES

ABERDEEN DISTRICT

J. G. CHICHESTER, M. D.	Redfield
M. H. EBERT, M. D.	Webster
R. G. MAYER, M. D.	Cresbard

WATERTOWN DISTRICT

S. W. SMITH, M. D.	Watertown
H. T. KENNEY, M. D.	Watertown

MADISON DISTRICT

C. H. R. HOVDE, M. D.	Madison

PIERRE DISTRICT

H. B. MARTIN, M. D.	Harrold

HURON DISTRICT

J. C. SHIRLEY, M. D.	Huron

MITCHELL DISTRICT

F. S. KIDD, M. D.	Woonsocket
W. A. DELANEY, M. D.	Mitchell

SIOUX FALLS DISTRICT

F. J. PUTNAM, M. D.	Sioux Falls
S. A. KELLER, M. D.	Sioux Falls

YANKTON DISTRICT

J. A. LANDMAN, M. D.	Yankton
J. P. A. ISAAC, M. D.	Freeman

BLACK HILLS DISTRICT

J. W. FREEMAN, M. D.	Lead

ROSEBUD DISTRICT

F. A. BRYANT, M. D.	Herrick

COMMITTEE ON LEGISLATION AND PUBLIC POLICY

PARK B. JENKINS, M. D. (Chairman)	Waubay
EDWARD W. JONES, M. D.	Mitchell
NELSON K. HOPKINS, M. D.	Arlington

COMMITTEE ON EDUCATION

THEODORE F. RIGGS, M. D. (Chairman)	Pierre
JOSEPH OHLMACHER, M. D.	Vermilion
JOHN B. GREGG, M. D.	Sioux Falls
HARRY T. KENNEY, M. D.	Watertown
BYRON A. BOBB, M. D.	Mitchell
EDWIN L. PERKINS, M. D.	Sioux Falls

COMMITTEE ON CHILD WELFARE

GOLDIE E. ZIMMERMAN, M. D. (Chairman)	Sioux Falls
CARLYLE HARE, M. D.	Spearfish
ROBERT D. WILSON, M. D.	Aberdeen

COMMITTEE ON HOSPITALS

C. E. McCAULEY, M. D. (Chairman)	Aberdeen
F. E. CLOUGH, M. D.	Lead

COMMITTEE ON CONSERVATION OF VISION

JOSEPH G. PARSONS, M. D. (Chairman)	Sioux Falls
EDWARD B. TAYLOR, M. D.	Huron
HORACE C. PEABODY, M. D.	Webster

COMMITTEE ON SPAFFORD MEMORIAL

GILBERT G. COTTAM, M. D. (Chairman)	Sioux Falls
ROBERT D. ALWAY, M. D.	Aberdeen
JOHN W. FREEMAN, M. D.	Lead
GEO. A. PETTIGREW, M. D.	Sioux Falls
MR. EUGENE SAENGER	Sioux Falls
HON. T. W. DWIGHT, President Board of Regents (Treasurer)	Sioux Falls
HAROLD W. FOGHT, M. D., President Northern Normal and Industrial School (Secretary)	Aberdeen

PLACE AND TIME OF NEXT MEETING—WATERTOWN, May, 1923

Proceedings of the House of Delegates

First Session—Tuesday, May 16, 1922

The House of Delegates met at 8 P. M. in Marvin Hughitt Hotel, Huron, S. D., and was called to order by the President, Dr. G. S. Adams, of Yankton. The Secretary called the roll and the following responded:

Dr. Hopkins	Arlington
Dr. Cook	Langford
Dr. Johnson	Watertown
Dr. Riggs	Pierre
Dr. Grosvenor	Huron
Dr. Isaac	Freeman
Dr. Clough	Lead
Dr. Chichester	Redfield
Dr. Mayer	Cresbard
Dr. Sherwood (alternate)	Watertown
Dr. Hovde	Madison
Dr. Shirley	Huron
Dr. Kidd	Woonsocket
Dr. Koobs (alternate)	Mitchell
Dr. E. D. Putnam	Sioux Falls
Dr. Keller	Sioux Falls
Dr. Freeman	Lead
Dr. Waterman (alternate)	Herrick
Dr. R. D. Alway, Secretary	Aberdeen

The Secretary presented his report on membership as follows:

Aberdeen (First) District	78
Watertown (Second) District	34
Madison (Third) District	15
Pierre (Fourth) District	5
Huron (Fifth) District	28
Mitchell (Sixth) District	37
Sioux Falls (Seventh) District	54
Yankton (Eighth) District	35
Black Hills (Ninth) District	39
Rosebud (Tenth) District	7
Total	332

Dr. Hovde, of Madison, accompanied by representatives from the Commercial Club of that city, extended an invitation to the Association to meet at Madison Lake and hold their annual session there in 1923. Their request, on motion, was referred to the Committee on Nominations.

Dr. Freeman, of Lead, presented a letter from the Black Hills District Medical Association requesting that the dues of the State Medical Association be reduced to $3.00 per capita. After a free and liberal discussion the letter was laid on the table.

PETITION FOR NEW DISTRICT SOCIETY

Dr. A. E. Bostrom, of De Smet, presented a petition signed by ten physicians praying for a charter to be granted to the physicians of Kingsbury County, said petition setting forth that they had organized a medical society of which Dr. Bostrom had been elected president, Geo. B. Iwine, secretary-treasurer, and signed by the following men: Drs. N. K. Hopkins, C. H. Cowgill, J. G. Ahern, A. E. Bostrom, E. H. Grove, C. A. Butler, G. V. Jamieson, J. B. Dickey, B. A. Dyar, G. B. Iwine.

It was moved by Dr. Waterman, seconded by Dr. Freeman, that the petitioners' prayer be granted and a charter issued to this society to be known as District No. 11. The motion prevailed.

COMMITTEE ON NOMINATIONS

The President appointed the following committee on nominations:

Dr. J. G. Chichester.
Dr. H. T. Kenney.
Dr. N. K. Hopkins.
Dr. J. C. Shirley.
Dr. Fred Treon.
Dr. E. D. Putnam.
Dr. J. P. Isaac.
Dr. J. W. Freeman.
Dr. T. F. Riggs.
Dr. J. C. Waterman.

It was moved and seconded that the House of Delegates adjourn to meet at the call of the President.

Second Session—Thursday, May 18, 1922

The House of Delegates was called to order by the First Vice-President, Dr. G. G. Cottam. On roll call the following responded: Drs. Waterman, Grosvenor, Shirley, Hovde, Freeman, Kenny, Hopkins, Riggs, Landman, Isaacs, and Jones (of Mitchell).

Dr. T. F. Riggs, chairman of the committee of the Workmen's Compensation Law, made the following report and moved its adoption, and that copies be printed and sent to each physician in the state. The motion was seconded by Dr. Kenney and prevailed.

FEE BILL UNDER WORKMAN'S COMPENSATION LAW

May 15, 1922.

Mr. President and Members of the South Dakota State Medical Association:

At the annual meeting last year in Aberdeen, following an address by the Industrial Commissioner of South Dakota, President H. T. Kenney appointed a committee to draw up a physicians' fee bill which would be applicable under the Workman's Compensation Law of this state. Your committee has gone about its work in the following manner:

After getting in touch with the Industrial Commissioner and obtaining from him an outline of the class of cases he desired to have covered, the various members of your committee independently worked out a fee bill which in their opinion was fair and reasonable for the part of the state each represents. These reports were averaged, also averages were struck from the reports of the four states at present having workmen's compensation fee bills. Taking the two averages as a basis, a suggested fee bill was drawn up, copies being sent to each member of the committee for additions and corrections. The result we present to you today. It is our hope that by this fee bill the Industrial Commissioner may be enabled to make his rulings in a manner satisfactory to the physicians and to the insurance companies.

Respectfully submitted,
T. F. Riggs, *Chairman.*

Committee:

R. L. Murdy, Aberdeen, S. D.
L. N. Grosvenor, Huron, S. D.
B. A. Bobb, Mitchell, S. D.
S. M. Hohf, Yankton, S. D.
G. G. Cottam, Sioux Falls, S. D.
F. E. Clough, Lead, S. D.

Suggested Physicians' Fee Bill

Applicable to cases coming under the South Dakota Workmen's Compensation Law

Amputations:

Hip	$125.00
Thigh	100.00
Foot or leg	75.00
Finger or toe	15.00
Shoulder	100.00
Arm	75.00
Forearm	75.00
Wrist	50.00
Resection of joints	100.00

Dislocation (simple):

Hip	75.00
Knee	40.00
Ankle	40.00
Shoulder	40.00
Elbow	40.00
Wrist	40.00
Finger or toe	10.00
Carpus and tarsus	75.00
Jaw	25.00

Fractures (simple):

Femur	125.00
Leg, one bone	50.00
Leg, both bones	75 00
Humerus	50.00
Forearm, one bone	25.00
Forearm, both bones	50.00
Carpus and tarsus	50.00
Metacarpus and metatarsus	15.00
Digits	10.00
Elbow or knee	75.00
Clavicle	30.00
Scapula	40.00
Patella, closed	50.00
Patella, open	75.00
Skull, base	100.00
Skull, vault	75.00
Skull, trephining	100.00
Ribs	20 00
Pelvis	100.00
Jaw	75.00

Compound or complicated dislocations or fractures, 50 per cent additional.

Miscellaneous:

Hernia, simple operation	$100.00
Hernia, strangulated	125.00
Hernia, by taxis and truss	25.00
General Anesthetic—	
Minor operation	5.00
Major operation	10.00

X-rays (depending on part)	5.00-15.00
Plaster cast (depending on part)	10.00-25.00
Mileage, day (per mile one way)	1.00
Mileage, night (per mile one way)	1.50
House calls, day	3.00
House calls, night	5.00
Office calls	2.00
Consultation (plus mileage)	10.00
Assistant fee, major operation	25.00
Minimum fee for any minor accident or operation, including preliminary and final reports	10.00
Enucleation or evisceration of eye	50.00
Perforating wound of the eye (surgery to preserve globe)	75.00
Court fee	(governed by law)
Court fee, expert, minimum (plus mileage)	25.00
Post mortem	25.00
Blood count	5.00-10.00
House calls, day	3 00
House calls, night	5.00
Hospital calls, day	2.00
Hospital calls, night	5.00

It is readily seen that this suggested Physicians' Fee Bill for Workmen's Compensation cases cannot be applied in all cases, because of the limitation under the Compensation Law for the combined hospital and medical service, the limit at present being $150.00. (A compound comminuted fracture of the femur with development of osteomyelitis, as an example.)

It is estimated that the suggested charges would be applicable in 80 per cent of the cases coming under the present law, but in the remaining 20 per cent of the cases the law limiting the combined hospital and physicians' fees works a hardship upon the hospitals, the physicians, or both.

We would suggest the amendment of the law—to divorce the professional and the hospital charges, making the maximum for *each* the same amount, namely, one hundred and fifty dollars.

REPORT OF NOMINATING COMMITTEE

Dr. Kenny made the following report for the Nominating Committee and moved its adoption. Motion prevailed. President, Dr. G. G. Cottam, Sioux Falls; first vice-president, Dr. F. E. Clough, Lead; second vice-president, Dr. R. L. Murdy, Aberdeen; third vice-president, Dr. W. R. Ball, Mitchell; secretary-treasurer, Dr. R. D. Alway, Aberdeen; councilor for Third District, Dr. Hovde, Madison; Tenth District, Dr. Waterman, Burke; Eleventh District, Dr. Hopkins, Arlington; Ninth District, Dr. Walsh, Rapid City; delegate to the American Medical Association for two years, Dr. J. B. Vaughn, Castlewood; alternate, Dr. A. J. Moe, Sioux Falls. The chairman asked for further nominations, and there being none declared them closed.

On motion by Dr. Riggs, seconded by Dr. Treon, the Secretary was instructed to cast the entire ballot of the House of Delegates for the officers nominated. The Secretary did so, and the chairman declared them elected.

The Nominating Committee chose Watertown as the next meeting place. Dr. Jones, of Mitchell, nominated Mitchell, and Dr. Hovde, of Madison, nominated Madison. It was moved and seconded that the election be by ballot. Upon the second ballot, Watertown received seven votes and Mitchell six, and Watertown was elected the next meeting place.

FREDERICK A. SPAFFORD MEMORIAL

Dr. Cottam addressed the House of Delegates in regard to a memorial for the late Dr. Frederick A. Spafford. After some discussion, it was moved by Dr. Isaac, of Freeman, that a committee of five be selected by the chairman, two of whom should be laymen, to take up the matter of receiving subscriptions for this memorial, to be placed in the Memorial Building of the State University.

There being no further business to come before the House of Delegates, it was duly moved, seconded and carried that they adjourn.

PROCEEDINGS OF THE BOARD OF COUNCILORS

First Session—Tuesday, May 16, 1922

8:00 P. M.

The Council was called to order by the President at 8 P. M. The Secretary called the roll and the following responded:

Dr. G. S. Adams, President	Yankton
Dr. Cook	Langford
Dr. Johnson	Watertown
Dr. Riggs	Pierre
Dr. Grosvenor	Huron
Dr. Isaac	Freeman
Dr. Clough	Lead
Dr. Alway, Secretary	Aberdeen

The Secretary presented his financial report for last year as follows:

FINANCIAL REPORT OF THE SECRETARY-TREASURER

May 22, 1921, to March 1, 1922

Receipts

May 24, 1921, amount on hand	$816.06
May 31, 1921, per capita dues, Mitchell district	3.00
May 31, 1921, per capita dues, Aberdeen district	9.00
June 11, 1921, per capita dues, Sioux Falls district	12.00
June 14, 1921, per capita dues, Watertown district	6.00
June 28, 1921, per capita dues, Sioux Falls district	12.00
June 29, 1921, per capita dues, Mitchell district	3.00
July 1, 1921, per capita dues, Watertown district	3.00
July 7, 1921, per capita dues, Yankton district	3.00
July 14, 1921, per capita dues, Madison district	3.00
Aug. 2, 1921, per capita dues, Mitchell district	3.00
Aug. 15, 1921, per capita dues, Rosebud district	3.00
Aug. 25, 1921, per capita dues, Yankton district	9.00
Sept. 3, 1921, per capita dues, Watertown district	3.00
Oct. 5, 1921, per capita dues, Mitchell district	3.00
Dec. 7, 1921, per capita dues, Watertown district	9.00
Dec. 31, 1921, per capita dues, Mitchell district	3.00
Jan. 19, 1922, per capita dues, Pierre district	24.00
Total	$927.06

Disbursements

July 5, 1921, warrant No. 1. Theodore Erickson (stationery)	$ 47.25
July 13, 1921, warrant No. 2. William Whitford.	208.68
Aug. 1, 1921, warrant No. 3. American Medical Association (directory)	12.00
Aug. 1, 1921, warrant No. 4. Journal-Lancet, (Jan.-June 30, 1921)	283.50
Aug. 1, 1921, warrant No. 5. Journal-Lancet (balance of subscription account July 1, 1920, to Dec. 30, 1920, due to error in sending bill for last half 1920)	94.50
Jan. 23, 1922, warrant No. 6. Journal-Lancet (July-Dec., 1921)	270.00
Jan. 23, 1922, warrant No. 7. Will A. Beach Printing Co. (cards)	14.41
Total	$930 34
Overdrawn	3.28

I certify the above is a correct financial statement of moneys received and disbursements made during the year from May 24, 1921, to March 1, 1922, for the South Dakota Medical Association.

(Signed) Mrs. F. A. Spafford.

Flandreau, S. D., April 3, 1922.

FINANCIAL REPORT OF THE SECRETARY-TREASURER, SOUTH DAKOTA STATE MEDICAL ASSOCIATION

March 1, 1922, to May 17, 1922

Receipts

March 31, 1922, J. A. Hohf, secy., 8th district	$ 162.00
March 31, 1922, W. H. Saxton, secy., 5th district	156.00
April 1, 1922, F. A. Bryant, secy., 10th district	36.00
April 5, 1922, R. B. Fleeger, secy., 9th district	240.00
April 5, 1922, W. H. Saxton, secy., 5th district	6.00
April 21, 1922, P. R. Billingsley, secy., 7th district	172.00
April 24, 1922, C. E. Sherwood, secy., 2nd district	198.00
May 1, 1922, R. V. Overton, secy., 10th district	6.00
May 1, 1922, P. R. Pinard, 8th district	6.00
May 1, 1922, F. Daniel Gillis, secy., 6th district	192.00
May 1, 1922, J. R. Westaby, secy., 3rd district	45.00
May 5, 1922, J. R. Westaby, secy., 3rd district	45.00
May 10, 1922, F. Daniel Gillis, secy., 6th district	12.00
May 11, 1922, W. H. Saxton, secy., 5th district	6.00
May 11, 1922, F. Daniel Gillis, secy., 6th district	12.00
May 12, 1922, P. R. Billingsley, secy., 7th district	108.00
May 12, 1922, P. R. Billingsley, secy., 7th district	50.00
May 13, 1922, J. E. Bruner, secy., 1st district	456.00
May 13, 1922, R. D. Alway, 1st district	12.00
May 14, 1922, J. A. Hohf, secy., 8th district	42.00
May 14, 1922, C. E. Sherwood, secy., 2nd district	6.00
May 14, 1922, F. Daniel Gillis, secy., 6th district	6.00
Total	$1,974.00

Disbursements

March 1, 1922, overdraft	$ 3.28
May 13, 1922, warrant No. 8. The Lilly Co. (badges)	32.71
May 13, 1922, warrant No. 9. Coleman the Florist	25.40
Total	$ 61.39
Balance on hand	$1,912.61

The President appointed the following auditing committee:

Drs. Riggs, Cook, and Clough.

Audited and found correct, May 17, 1922.

(Signed) J. F. D. Cook,
F. E. Clough,
T. F. Riggs,
Committee.

THE JOURNAL-LANCET

Mr. Klein, the publisher of The Journal-Lancet, was present and addressed the Board in regard to the per capita dues for the Lancet, stating that under prevailing conditions they found it necessary that the dues be raised from $1.50 to $2.00. He also outlined the policy that the Lancet expected to put into effect the coming year in order to increase the membership in the different associations.

It was moved by Dr. Alway, seconded by Dr. Riggs, that the contract with The Journal-Lancet be renewed at $2.00 per capita, with the privilege of discontinuing same at any time that the State Association should see fit. Motion prevailed.

DISTRIBUTION OF CONSTITUTION AND BY-LAWS

It was moved by Dr. Clough, seconded by Dr. Isaac, that the Secretary be instructed to publish sufficient numbers of the Constitution and By-Laws "as amended and adopted at the 1921 session" and copies of each sent out to the Secretaries of the respective District Societies.

It was moved and seconded that the Council adjourn to meet at the call of the President.

Second Session—May 19, 1922

The Council met at 8:30 A. M. Those present were Drs. G. S. Adams, Clough, Treon, Grosvenor, Isaac, Cook, and the Secretary. It was moved by Dr. Clough, seconded by Dr. Treon, that the Treasurer be instructed to pay Mrs. H. E. A. Spafford $250.00, Dr. Spafford's salary for the past year. Dr. Riggs, chairman of the Auditing Committee, reported that they had examined the books and vouchers of the Association and found them correct.

The following officers were elected for the ensuing year: Dr. T. F. Riggs, chairman; Dr. L. N. Grosvenor, clerk. It was moved by Dr. Riggs, and seconded by Dr. Treon, that the Secretary be instructed to send copies of the financial report to each physician in the state, and a sufficient number of new by-laws to the Secretary of each district with the request that they furnish each physician in the district with a copy.

There being no further business, the Council adjourned.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE ASSOCIATION

First Day, Wednesday, May 17
Morning Session

The Association met at the Marvin Hughitt Hotel, and was called to order at 9:15 A. M. by the President, Dr. G. S. Adams, Yankton.

Dr. O. R. Wright, Huron, delivered an address of welcome, which was responded to by President Adams.

Hon. Steve Travis, Pierre, was introduced and spoke of fee bills, and expressed the hope that the Association would adopt a uniform fee bill which would be applicable to all districts of the state.

Dr. Henry L. Saylor, Huron, read a paper entitled "Epidemic Cerebrospinal Meningitis." The paper was discussed by Drs. Billingsby, Nessa, and, in closing, by the essayist.

Dr. J. C. Ohlmacker, Vermilion, read a paper on "The Relation of the Laboratory to Clinical Medicine in the Light of Present-Day Medical Advancement," which was discussed by Drs. Herzberg, Isaac, and, in closing, by the essayist.

Dr. A. A. Sornsen, Aberdeen, read a paper on "Inflammatory Conditions of the Mastoid Process and the Middle Ear," which was discussed by Drs. Parsons and Keller, after which the discussion was closed by the author of the paper.

Dr. A. McLaurin, Pierre, read a paper entitled "Syphilis in General Practice." This paper was discussed by Drs. Wright, Templeton, Ohlmacker, and, in closing, by the essayist.

The President announced the following Nominating Committee: Drs. J. G. Chichester, H. T. Kenney, N. K. Hopkins, T. C. Shirley, Fred Treon, E. D. Putnam, J. P. Isaac, T. W. Freeman, T. F. Riggs, and J. C. Waterman.

Dr. R. F. Bellaire, Sioux City, Iowa, read a paper entitled "Recent Developments in Radiotherapy," which was discussed by Dr. Nessa and, in closing, by the essayist.

The President read a communication from Dr. A. F. Schmitt, Minneapolis, Secretary-General of the Southern Minnesota Medical Association, inviting the members to attend the forthcoming meeting of that body at Rochester, Minnesota, on June 19 and 20.

On motion the Association adjourned until 2 P. M.

First Day—Afternoon Session

The Association reconvened at 2 P. M., and was called to order by the President.

Dr. G. G. Cottam, Sioux Falls, First Vice-President, took the chair, and President Adams delivered his presidential address.

At the close of the President's address, Dr. Cottam spoke to the Association on the work which the National Association of the American Legion is doing in regard to inducing foreigners who are earning their living in this country to become citizens of the United States.

Dr. John G. Cross, Minneapolis, read a paper entitled "The Causes and Care of Arterial Hypertension." This paper was discussed by Drs. Gross, Klaveness, and, in closing, by the essayist.

Dr. Franklin R. Wright, Minneapolis, read a paper on "Complications During or Following Operation for Hypertrophy of the Prostate," which was discussed by Drs. Whiteside, Quain, Moore, and, in closing, by the essayist.

Dr. Dean D. Lewis, Chicago, read a paper on "Surgical Diseases of Bones," which was illustrated by numerous lantern slides. The paper was discussed by Dr. Clough and, in closing, by the author of the paper.

Dr. Henry F. Helmholz, Rochester, Minnesota, read a paper entitled "Pyelitis in Infancy and Childhood," which was discussed by Dr. Zimmerman, after which, on motion, the Association adjourned until 9 A. M. Thursday, May 18.

Second Day—Morning Session

The Association met at 9:30 A. M., and was called to order by the President.

Dr. Bayard Holmes, Chicago, read a paper entitled "The Duty of the Physician and Surgeon to the Adolescent Insane—the Dementia Precox Patient." The paper was discussed by Drs. Adams, Bobb, and, in closing, by the essayist.

Dr. F. W. Wittich, Minneapolis, read a paper on "Practical Suggestions in the Diagnosis and Treatment of Pulmonary Tuberculosis."

Dr. J. A. Myers, Minneapolis, read a paper on "Tuberculosis."

These two papers were discussed together by Drs. Jones, Koren, Koobs, and the discussion was closed by the essayists.

Dr. J. D. Lewis, Minneapolis, read a paper entitled "The Correction of External Nasal Deformities."

On motion, the Association adjourned until 1:30 P. M.

Second Day—Afternoon Session

The Association reconvened at 1:30 P. M., and was called to order by the President.

Dr. C. W. Hopkins, Chicago, read a paper entitled "Unusual Fractures and Dislocations with End Results." The paper was discussed by Drs. Lounsbury, Freeman, Wright, Clough, and, in closing, by the author of the paper.

Dr. F. B. Lounsburg, Chicago, read a paper on "Medical and Surgical Treatment of Gastric Ulcer."

Dr. Donald Macrea, Council Bluffs, Iowa, read a paper on "Gastric and Duodenal Ulcer, Diagnosis and Treatment."

These two papers were discussed together by Drs. Bobb, Murdy, Nessa, and, in closing, by the essayists.

Dr. E. P. Quain, Bismarck, North Dakota, followed with a paper on "Coloptosis: Etiology, Symptomatology, and Medical and Surgical Treatment." The paper was discussed by Drs. Riggs, Macrea, and, in closing, by the essayist.

Dr. Verne C. Hunt, Rochester, Minnesota, read a paper entitled "Complications Following Pelveolithotomy and Ureterolithotomy," which was discussed by Drs. Westaby, Moore, and, in closing, by the essayist.

Dr. Finn Koren, Watertown, read a paper entitled "The Cancer Problem in South Dakota." This paper was discussed by Drs. Kenney, Klaveness, and Cowgill, after which Dr. Kenney moved that the President appoint a representative from each district to formulate a plan for the formation of a league for the conservation of health with the citizens of each district, and the district leagues to be built into a state association, which is to co-operate with the South Dakota State Medical Association.

Seconded and carried.

Vice-president Murdy stated that he had appointed such a committee from members of the House of Delegates, with instructions to report the first week in November at Pierre.

Dr. Templeton moved that a hearty vote of thanks be extended to the local committee of arrangements, to the citizens of Huron, and to the hotels for courtesies and kindnesses extended to the members and guests during this meeting.

Seconded and unanimously carried.

As there was no further business, scientific or otherwise, to come before the meeting, on motion the Association adjourned *sine die*.

R. D. Alway, M.D.,
Secretary-Treasurer.

DISTRICT AND COUNTY ROSTER

ABERDEEN DISTRICT MEDICAL SOCIETY—NO. 1

PRESIDENT

Cook, J. F. D. ....Langford

SECRETARY

McCauley, C. E. ......Aberdeen

Adams, B. A.............Bristol
Adams, J. F...........Aberdeen
Aldrich, H. H............Orient
Allen, J. M...............Rosholt
Alway, R. D...........Aberdeen
Baer, T. H. ....Timber Lake
Bailey, F. C.............Redfield
Baldwin, F. M..........Redfield
Bates, W. A............Aberdeen
Brosseau, J. E.........Frankfort
Brown, A. E............Webster
Bruner, J. E...........Frederick
Carpenter, G. S..........Bowdle
Chapman, W. S.........Redfield
Chase, A. E...........Northville
Chichester, J. G.......Redfield
Cliff, F. N...............Milbank
Cook, J. F. D..........Langford
Countryman, G. E......Aberdeen
Crain, F. M.............Redfield
Creamer, Frank H.......Dupree
Curtis, J. E..............Lemmon
Deertz, J. J............Brentford
Dinsmore, W. E.......Claremont
Dunn, J. E...............Groton
Elward, L. R. ....Ashton
Farrell, W. D. ....Aberdeen
Flett, Charles ....Milbank
Freyberg, F. W.........Aberdeen
Gerdes, O. H............Eureka
Harris, H. G. ....Wilmot
Hart, B. M................Onida
Hart, R. S...............Groton
Hill, Robert.............Ipswich
Holmes, A. E..........Aberdeen
Holtz, Louis...........Aberdeen
Homan, C. A. ....Aberdeen
Hurley, S. E. ....Gettysburg
Jacotel, J. A. ....Milbank
Jackson, E. B........Aberdeen
Jenkins, P. B. ....Waubay
Johnston, M. C.........Aberdeen
Jones, R. R. ....Britton
Jones, T. D.............Bowdle
Kettner, J. C. ....Leola
King, H. I.............Aberdeen
King, Owen ....Aberdeen
Kleger, S. A...........Mellette
Kraushaar, F. J.........Aberdeen
Kutnewsky, J. K........Redfield
Lavery, C. J............Aberdeen
Lowe, C. E. ....Mobridge
Lundquist, C. C..........Leola
Mayer, R. G. ....Cresbard
McCauley, C. E........Aberdeen
Mertens, J. J.........Gettysburg
Miller, J. F..............Andover
Miller, Frank..........Aberdeen
Murdy, B. C...........Aberdeen
Murdy, R. L...........Aberdeen
Murphy, T. W. ....Pierpont
Olson, C. O..............Groton
Peabody, H. C..........Webster
Peabody, Percy ....Webster
Pittenger, E. A. ....Aberdeen
Potter, Geo. W..........Redfield
Ramsey, E. T..............Clark
Ranney, T. P...........Aberdeen
Rice, D. B. ....Aberdeen
Rosenthal, S..........Aberdeen
Seeman, C. A. ....Tulare
Seeman, H. J. ....Rockham
Senescall, C. R...........Veblen
Sornsen, A. A..........Aberdeen
Sutton, Dewey..........Redfield
Twining, G. H..........Mobridge
Weishaar, C. H.......Aberdeen
White, E. W.............Ipswich
Whiteside, J. D........Aberdeen
Whitney, L. D. ....Aberdeen
Wilson, R. D. ....Aberdeen

WATERTOWN DISTRICT MEDICAL SOCIETY—NO. 2

PRESIDENT

Koren, Finn ....Watertown

SECRETARY

Sherwood, C. E.....Watertown

Bartron, H. J........Watertown
Bates, J. S.........Clear Lake
Boutelle, L. E.......Clear Lake
Burlingame, R. M....Watertown
Campbell, R. F.......Watertown
Crawford, J. H.....Watertown
Fleeger, A. B. ....Willow Lakes
Freeburg, H. M......Watertown
Frink, O. G.........South Shore
Green, B. T.........Brookings
Gueffroy, H. A.......Frankfort
Hammond, M. J.......Watertown
Haroldson, Olaf....Watertown
Haskell, H. I. .... Clark
Hendricksen, Paul.......Vienna
Johnson, A. Einar.....Watertown
Kenney, H. T. ......Watertown
Koren, Finn ....Watertown
Lockwood, J. H...........Henry
McIntyre, P. S..........Bradley
Magee, W. G.........Watertown
Parsons, H. C.......Watertown
Paulson, A. J. ....Watertown
Pinnard, C. J. ....Gary
Pugh, G. F...............Florence
Richards, G. H......Watertown
Rowe, A. N. ....Estelline
Sherwood, C. E. .....Watertown
Sherwood, H. W.........Doland
Smith, S. W. ....Watertown
Staley, F. H. ....Vienna
Tarbell, H. A........Watertown
Vaughn, J. B.........Castlewood
Williams, C. A. ....Doland

MADISON DISTRICT MEDICAL SOCIETY—NO. 3

PRESIDENT

Westaby, R. S. ....Madison

SECRETARY

Westaby, J. R..........Madison

Ahern, J. J. ....Oldham
Allison, B. S. ....Madison
Baughman, D. S. ....Madison
Fields, E. H. ....Nunda
Grove, E. H...........Arlington
Hickman, G. L. ....Bryant
Hoaglund, C. C. .....Madison
Hopkins, N. K.........Arlington
Hovde, C. H. R........Madison
Jordan, L. E.............Chester
Kellogg, H. E............Madison
Scanlan, D. L. ....Volga
Torwick, E. E.............Volga
Westaby, J. R. ....Madison
Westaby, R. S...........Madison

PIERRE DISTRICT MEDICAL SOCIETY—NO. 4

PRESIDENT

Hollister, C. M. ....Pierre

SECRETARY

Martin, H. B..........Harrold

Hollister, C. M...........Pierre
Martin, H. B...........Harrold
McLaurin, A. A...........Pierre
Minard, R. W..........Midland
Riggs, T. F...............Pierre

HURON DISTRICT MEDICAL SOCIETY—NO. 5

PRESIDENT

Sprague, B. H. .... Huron

SECRETARY

Saxton, W. H. .... Huron

Bostrom, A. E. .... De Smet
Buchanan, R. A. ..... Wessington
Burman, G. E. .... Carthage
Cogswell, M. E.......... Wolsey
Cowgill, C. H........... Iroquois
Dyar, B. A............. De Smet
Grosvenor, L. N.......... Huron
Jamieson, G. W.......... DeSmet
Launspach, G. W......... Huron
Leach, W. O.............. Huron
Longsdale, G. R. ...... Highmore
McGarvey, F. B.......... Cavour
McKie, J. F......... Wessington
McWhorter, Port.......... Miller
Paddleford, J. F. .... Miller
Saxton, W. H. .... Huron
Saylor, H. L. .... Huron
Scheib, A. P. .... Hitchcock
Schwendener, J. E....... Bryant
Sewell, H. D............. Huron
Sheets, O. B.... Hollywood, Cal.
Shirley, J. C.............. Huron
Sprague, B. H............ Huron
Taylor, E. B.............. Huron
Thomas, Benj. .... Huron
Tschetter, J. S............ Huron
Wheelock, D. O.......... Miller
Wood, T. J............... Huron
Wright, O. R............. Huron

MITCHELL DISTRICT MEDICAL SOCIETY—NO. 6

PRESIDENT

Auld, C. V. .... Plankinton

SECRETARY

Gillis, F. D............ Mitchell

Auld, C. V........... Plankinton
Ball, W. R.............. Mitchell
Bigler, Lottie .... Armour
Bobb, B. A.............. Mitchell
Bobb, C. S.............. Mitchell
Bobb, E. V... .... Mitchell
Buffaloe, A. J........... Mitchell
Clauser, G. A. ...... Bridgewater
Cochran, F. B. ...... Plankington
Crawford, R. A..... Chamberlain
Delaney, W. A........ Mitchell
Dick, L. C. .... Spencer
Farnsworth, C. P.... Chamberlain
Gifford, A. J. .... Alexandria
Gillis, F. D.............. Mitchell
Hoyne, A. H. .... Bijou Hills
Hunt, Wm............... Murdo
Jenkenson, H. E. .... Wessington Springs
Jones, E. W............. Mitchell
Kelly, R. A.............. Mitchell
Kidd, F. S. .... Woonsocket
Kimble, O. A.............. Murdo
Koobs, H. J. G....... Mitchell
Lloyd, J. H. .... Mitchell
McManus, Clara.. Gann Valley
Maytum, W. G........ Alexandria
Mizner, Mark .... Parkston
Smiley, T. B........ Mt. Vernon
Stockdale, C. P........... Ethan
Templeton, C. V... Woonsocket
Tobin, F. J. .... Mitchell
Treon, Fred....... Chamberlain
Vetter, J. G. .... Letcher
Waldner, J. F. .... Parkston
Wallis, S. R............ Mitchell
Wilson, F. D. .... Armour
Young, E. M. .... Mitchell
Wagar, E. N......... Bijou Hills

SIOUX FALLS DISTRICT MEDICAL SOCIETY—NO. 7

PRESIDENT

Stern, M. A. .... Sioux Falls

SECRETARY

Billingsley, P. R. .... Sioux Falls

Barnes, Wm. .... Sioux Falls
Billion, T. J......... Sioux Falls
Billingsley, P. R... Sioux Falls
Brandon, P. E........ Sioux Falls
Cottam, G. G........ Sioux Falls
Craig, D. W......... Sioux Falls
Culver, C. F......... Sioux Falls
Donahoe, S. A....... Sioux Falls
Donahoe, W. E..... Sioux Falls
Eagan, J. B........... Dell Rapids
Egan, M. H.......... Sioux Falls
Gage, E. E............ Sioux Falls
Gregg, J. B......... Sioux Falls
Gregory, D. R........ Sioux Falls
Grove, A. F.......... Dell Rapids
Grove, M. M......... Dell Rapids
Hanson, O. L...... Valley Springs
Hill, L. G. .... Sioux Falls
Housman, W. McK.. Sioux Falls
Hummer, H. R........... Canton
Hyden, A.............. Alcester
Jones, T. E.......... Sioux Falls
Jordan, A. A........... Hudson
Keller, S. A......... Sioux Falls
Keller, W. F......... Sioux Falls
Klaveness, E.. Minneapolis, Minn.
Miller, E. C. .... Brookings
Moe, A. J. .... Sioux Falls
Moore, W. E....... Sioux Falls
Mullen, R. W. .... Sioux Falls
Nessa, N. J.......... Sioux Falls
Parke, L. L. .... Canton
Parsons, J. G......... Sioux Falls
Perkins, E. L........ Sioux Falls
Putnam, E. D......... Sioux Falls
Putnam, F. I........ Sioux Falls
Reagan, R.......... Sioux Falls
Rider, A. S.......... Flandreau
Rock, H. J. .... Sioux Falls
Rundlett, D. L...... Sioux Falls
Sackett, Roy............ Parker
Sherwood, H. H........ Humbolt
Siedenberg, F...... Sioux Falls
Schwartz, Jos....... Sioux Falls
Spafford, F. A......... Flandreau
Stenberg, E. S...... Sioux Falls
Stern. M. A.......... Sioux Falls
Stevens, G. A. ..... Sioux Falls
Stevens, R. G........ Sioux Falls
Thompson, T. G..... Sioux Falls
Tufts, A. H......... Sioux Falls
Van Demark, G. E... Sioux Falls
Wendt, C. L. .... Canton
Vaughn, L. B. .... Hartford
Zetlitz, Arne....... Sioux Falls
Zetlitz, K. A. L....... Sioux Falls
Zimmerman, Goldie.... Sioux Falls

YANKTON DISTRICT MEDICAL SOCIETY—NO. 8

PRESIDENT

Stiffler, M. L. .... Yankton

SECRETARY

Hohf, J. A. .... Yankton

Adams, G. S............ Yankton
Beall, L. F................. Irene
Berry, S. G. .... Tyndall
Blezek, F. M............ Tabor
Bouza, F. E......... White River
Burkland, P. R....... Vermilion
Bushnell, Wm. F..... Elk Point
Clagett, M. H. .... Menno
Cramer, L. L........... Viborg
Crecelius, H. A............ Volin
Cruikshank, Thos. ..... Vermilion
Eagon, Alonzo .... Turton
Ellis, John W........ Elk Point
Embree, V. W.......... Yankton
Gross, C. C........... Yankton
Hohf, J. A............. Yankton
Hohf, S. M............ Yankton
Isaac, J. P............. Freeman
Johnson, G. E. .... Avon
Kallayjian, D. S......... Parker
Kauffman, E. J.......... Marion
Keeling, C. M....... Springfield
Klima, Hermenegild ..... Tyndall
Landmann, G. A......... Scotland
Moore, D. V........... Yankton
Moore, F. A.......... Lesterville
Morehouse, E. M........ Yankton
Payne, R. H................ Tripp
Pinard, P. R. .... Wagner
Roane, James........... Yankton
Smith, F. C............. Yankton
Stansbury, E. M. ...... Vermilion
Stiffler, M. L........... Yankton
Swezey, F. A.......... Wakonda
Trierweiler, J. E. ...... Yankton
Willhite, F. V........... Yankton

BLACK HILLS DISTRICT MEDICAL SOCIETY—NO. 9

PRESIDENT

Richards, F. A. ....Sturgis

SECRETARY

Fleeger, R. B..............Lead
Allen, A. G...............Deadwood
Bilger, F. W.........Ardmore
Brewer, J. W...............
Nat'l'n Soldiers' Home—Me.
Chassell, J. L......Bellefourche
Clough, F. E.............Lead
Crane, H. L................Lead
Crouch, J. A........Bellefourche
Ewald, P. P..............Lead
Fleeger, R. B..............Lead
Freeman, J. W............Lead
Hare, Carlyle..........Spearfish
Hargens, C. W. ....Hot Springs
Heinemann, A. A........Wasta
Hennings, A. J.............Lead
Hodges, V. R.............Lead
Howe, F. S...........Deadwood
Hultz, Eugene ....Hill City
Ince, H. J. T.........Rapid City
Jackson, A. S. ....Lead
Jackson, R. J. ....Rapid City
Martin, J. H..............Lead
Mattox, N. E..............Lead
Mesirow, M. E...........Wall
Miller, George..........Spearfish
Mills, G. W. ....Wall
Minty, F. W.........Rapid City
Mitchell, Fred L. ....Newell
Moffitt, T. W.........Deadwood
Morse, W. E........Rapid City
O'Toole, T. F. New Underwood
Owen, N. T. ....Rapid City
Pemberton, M. O......Deadwood
Ramsey, Guy..............Philip
Richards, F. A. ....Sturgis
Schneerer, F. B.......Deadwood
Stewart, J. L...............Lead
Walsh, J. M..........Rapid City
Williamson, W. R........Nemo
Yoskit, Harry......Hot Springs
Young, B. A........Hot Springs

ROSEBUD DISTRICT MEDICAL SOCIETY—NO. 10

PRESIDENT

Waterman, J. C. ....Burke

SECRETARY

Overton, R. V. ....Dixon
Bryant, F. A...........Herrick
Kenaston, H. R.........Bonesteel
Malster, R. M............Carter
Murnan, H. A..........Winner
Overton, R. C. ....Dixon
Quinn, R. J...............Burke
Waterman, J. C...........Burke

ALPHABETICAL ROSTER

Adams, B. A.............Bristol
Adams, G. S............Yankton
Adams, J. F...........Aberdeen
Aldrich, H. H............Orient
Ahern, J. J. ....Oldham
Allen, A. G............Deadwood
Allen, J. M..............Rosholt
Allison, B. S. ....Madison
Alway, R. D...........Aberdeen
Auld, C. V..........Plankinton
Baer, T. H..........Timberlake
Bailey, F. C..............Redfield
Baldwin, F. M..........Redfield
Ball, W. R..............Mitchell
Barnes, Wm. ....Sioux Falls
Bartron, H. J........Watertown
Bates, J. S.........Clear Lake
Bates, W. A............Aberdeen
Baughman, D. S. ....Madison
Beall, L. F...............Irene
Berry, S. G. ....Tyndall
Bigler, Lottie ....Armour
Bilger, F. W.........Ardmore
Billion, T. J.........Sioux Falls
Billingsley, P. R...Sioux Falls
Blezek, F. M............Tabor
Bobb, B. A.............Mitchell
Bobb, Clyde S...........Mitchell
Bobb, E. V..............Mitchell
Bouza, F. E.........White River
Bostrom, A. E. ....De Smet
Boutelle, L. E.......Clear Lake
Brandon, P. E........Sioux Falls
Brewer, J. W...............
Nat'l'n Soldiers' Home—Me.
Brosseau, J. E.........Frankfort
Brown, A. E............Webster
Buchanan, R. A. ....Wessington
Bruner, J. E...........Frederick
Bryant, F. A............Herrick
Buffaloe, A. J...........Mitchell
Burkland, P. R.......Vermilion
Burlingame, R. M....Watertown
Burman, G. E. ....Carthage
Bushnell, Wm. F.....Elk Point
Campbell, R. F.......Watertown
Carpenter, G. S..........Bowdle
Chapman, W. S.........Redfield
Chase, A. E...........Northville
Chassell, J. L......Bellefourche
Chichester, J. G.......Redfield
Clagett, M. H. ....Menno
Clauser, G. A. ......Bridgewater
Cliff, F. N..............Milbank
Clough, F. E.............Lead
Cochran, F. B. ......Plankington
Cogswell, M. E..........Wolsey
Cook, J. F. D.........Langford
Cottam, G. G........Sioux Falls
Countryman, G. E......Aberdeen
Cowgill, C. H...........Iroquois
Craig, D. W.........Sioux Falls
Crain, F. M.............Redfield
Cramer, L. L...........Viborg
Crane, H. L................Lead
Crawford, R. A.....Chamberlain
Crawford, J. H.....Watertown
Creamer, F. H...........Dupree
Crecelius, H. A............Volin
Crouch, J. A........Bellefourche
Cruikshank, Thos. .....Vermilion
Culver, C. F.........Sioux Falls
Curtis, J. E..............Lemmon
Deertz, J. J............Brentford
Delaney, W. A........Mitchell
Dick, L. C. ....Spencer
Dinsmore, W. E.......Claremont
Donahoe, S. A.......Sioux Falls
Donahoe, W. E.....Sioux Falls
Dunn, J. E.............Groton
Dyar, B. A.............De Smet
Eagan, J. B. ....Dell Rapids
Eagon, Alonzo ....Turton
Egan, M. H..........Sioux Falls
Ellis, John W........Elk Point
Elward, L. R. ....Ashton
Embree, V. W..........Yankton
Ewald, P. P..............Lead
Farnsworth, C. P....Chamberlain
Farrell, W. D. ....Aberdeen
Fields, E. H. ....Nunda
Fleeger, A. B. ....Willow Lake
Fleeger, R. B..............Lead
Flett, Charles ....Milbank
Freeburg, H. M......Watertown
Freeman, J. W............Lead
Freyberg, F. W.......Aberdeen
Gage, E. E...........Sioux Falls
Gerdes, O. H.............Eureka
Gifford, A. J. ....Alexandria
Gillis, F. D..............Mitchell
Gregg, J. B..........Sioux Falls
Gregory, D. R........Sioux Falls
Green, B. T..........Brookings
Gross, C. C.............Yankton
Grosvenor, L. N..........Huron
Grove, A. F.........Dell Rapids
Grove, E. H...........Arlington
Grove, M. M........Dell Rapids
Gueffroy, H. A.........Frankfort
Hammond, M. J......Watertown
Hanson, O. L....Valley Springs
Harris, H. G. ....Wilmot
Haroldson, Olaf....Watertown
Hare, Carlyle..........Spearfish
Hargens, C. W. ....Hot Springs
Hart, B. M...............Onida
Hart, R. S...............Groton
Haskell, H. I. .... Clark
Heinemann, A. A........Wasta
Hennings, A. J.............Lead
Hendricksen, Paul.......Vienna
Hickman, G. L. ....Bryant
Hill, L. G...........Sioux Falls
Hill, Robert ....Ipswich
Hoaglund, C. C.......Madison
Hodges, V. R.............Lead
Hohf, J. A..............Yankton
Hohf, S. M.............Yankton
Hollister, C. M...........Pierre
Holmes, A. E.........Aberdeen
Holtz, Louis...........Aberdeen

Hopkins, N. K.........Arlington
Homan, C. A. ....Aberdeen
Housman, W. McK..Sioux Falls
Hovde, C. H. R........Madison
Howe, F. S...........Deadwood
Hoyne, A. H. ....Bijou Hills
Hultz, Eugene ....Hill City
Hummer, H. R...........Canton
Hunt, Wm.............Murdo
Hurley, S. E. ....Gettysburg
Hyden, A..............Alcester
Ince, H. J. T.........Rapid City
Isaac, J. P.............Freeman
Jacotel, J. A. ....Milbank
Jackson, A. S. ....Lead
Jackson, E. B........Aberdeen
Jackson, R. J. ....Rapid City
Jamieson, G. W..........DeSmet
Jenkins, P. B. ....Waubay
Jenkenson, H. E. ....
Wessington Springs
Johnson, A. Einar.....Watertown
Johnson, G. E. ....Avon
Johnston, M. C.........Aberdeen
Jones, E. W.............Mitchell
Jones, R. R. ....Britton
Jones, T. D............Bowdle
Jones, T. E..........Sioux Falls
Jordan, A. A...........Hudson
Jordan, L. E.............Chester
Kallayjian, D. S. ....Parker
Kauffman, E. J...........Marion
Keeling, C. M.......Springfield
Keller, S. A.........Sioux Falls
Keller, W. F........Sioux Falls
Kellogg, H. E...........Madison
Kelly, R. A.............Mitchell
Kenaston, H. R.........Bonesteel
Kenney, H. T......Watertown
Kettner, J. C. ....Leola
Kidd, F. S. ....Woonsocket
Kimble, O. A..............Murdo
King, H. I.............Aberdeen
King, Owen ....Aberdeen
Klaveness, E..Minneapolis, Minn.
Kleger, S. A............Mellette
Klima, Hermenegild .....Tyndall
Koobs, H. J. G.......Mitchell
Koren, Finn ....Watertown
Kraushaar, F. J.. ....Aberdeen
Kutnewsky, J. K........Redfield
Landmann, G. A.........Scotland
Langsdale, G. H........Highmore
Launspach, G. W.........Huron
Lavery, C. J...........Aberdeen
Leach, W. O...............Huron
Lloyd, J. H. ....Mitchell
Lockwood, J. H............Henry
Lowe, C. E............Mobridge
Lundquist, C. C..........Leola
McCauley, C. E........Aberdeen
McGarvey, F. B..........Cavour
McKie, J. F.........Wessington
McIntyre, P. S..........Bradley
McLaurin, A. A..........Pierre
McWhorter, Port..........Miller
Magee, W. G.........Watertown
Malster, R. M............Carter
Martin, H. B............Harrold

Martin, J. H...............Lead
Mattox, N. E.............Lead
Mayer, R. G. ....Cresbard
Maytum, W. G........Alexandria
Mertens, J. J.........Gettysburg
Mesirow, M. E...........Wall
Miller, E. C. ....Brookings
Miller, Frank..........Aberdeen
Miller, George..........Spearfish
Miller, J. F..............Andover
Mills, G. W. ....Wall
Minard, R. W...........Midland
Minty, F. W.........Rapid City
Mitchell, Fred L. ....Newell
Mizner, Mark ....Parkston
Moe, A. J. ....Sioux Falls
Moffitt, T. W.........Deadwood
Moore, D. V...........Yankton
Moore, F. A..........Lesterville
Moore, W. E.......Sioux Falls
Morehouse, E. M........Yankton
Morse, W. E........Rapid City
Mullen, R. W. ....Sioux Falls
Murdy, B. C...........Aberdeen
Murdy, R. L...........Aberdeen
Murnan, H. A..........Winner
Murphy, T. W. ....Pierpont
Nessa, N. J..........Sioux Falls
O'Toole, T. F. New Underwood
Olson, C. O...............Groton
Overton, R. V. ....Dixon
Owen, N. T. ....Rapid City
Paddleford, J. F. ....Miller
Parke, L. L. ....Canton
Parsons, H. C.......Watertown
Parsons, J. G.......Sioux Falls
Paulson, A. J. ....Watertown
Payne, R. H...............Tripp
Peabody, H. C..........Webster
Peabody, Percy ....Webster
Pemberton, M. O......Deadwood
Perkins, E. L........Sioux Falls
Pinard, C. J. ....Gary
Pinard, P. R. ....Wagner
Pittenger, E. A. ....Aberdeen
Potter, Geo. W..........Redfield
Pugh, G. F..............Florence
Putnam, E. D.........Sioux Falls
Putnam, F. I........Sioux Falls
Quinn, R. J...............Burke
Ramsey, E. T..............Clark
Ramsey, Guy..............Philip
Ranney, T. P...........Aberdeen
Reagan, R..........Sioux Falls
Rice, D. B. ....Aberdeen
Richards, G. H.....Watertown
Richards, F. A. ....Sturgis
Rider, A. S..........Flandreau
Riggs, T. F...............Pierre
Roane, James ....Yankton
Rock, H. J. ....Sioux Falls
Rosenthal, S...........Aberdeen
Rowe, A. N. ....Estelline
Rundlett, D. L......Sioux Falls
Sackett, Roy............Parker
Saxton, W. H. ....Huron
Saylor, H. L. ....Huron
Scanlan, D. L. ....Volga
Scheib, A. P. ....Hitchcock
Schneerer, F. B.......Deadwood

Schwartz, Jos.......Sioux Falls
Schwendener, J. E.......Bryant
Seeman, C. A. ....Tulare
Seeman, H. J. ....Rockham
Senescall, C. R............Veblen
Sewell, H. D.............Huron
Sheets, O. B....Hollywood, Cal
Sherwood, C. E. .....Watertown
Sherwood, H. H........Humbolt
Sherwood, H. W.........Doland
Shirley, J. C..............Huron
Siedenberg, F......Sioux Falls
Smiley, T. B........Mt. Vernon
Smith, F. C............Yankton
Smith, S. W. ....Watertown
Sornsen, A. A..........Aberdeen
Spafford, F. A.........Flandreau
Sprague, B. H............Huron
Staley, F. H. ....Vienna
Stansbury, E. M. ......Vermilion
Stenberg, E. S......Sioux Falls
Stern, M. A...........Sioux Falls
Stewart, J. L...............Lead
Stevens, G. A.......Sioux Falls
Stevens, R. G.........Sioux Falls
Stiffler, M. L...........Yankton
Stockdale, C. P..........Ethan
Sutton, Dewey..........Redfield
Swezey, F. A..........Wakonda
Tarbell, H. A........Watertown
Taylor, E. B...............Huron
Templeton, C. V...Woonsocket
Thomas, Benj. ....Huron
Thompson, T. G.....Sioux Falls
Tobin, F. J. ....Mitchell
Torwick, E. E............Volga
Trienweiler, J. E. ......Yankton
Treon, Fred.........Chamberlain
Tschetter, J. S.............Huron
Tufts, A. H.........Sioux Falls
Twining, G. H..........Mobridge
Van Demark, G. E...Sioux Falls
Vaughn, J. B.........Castlewood
Vaughn, L. B. ....Hartford
Vetter, J. C. ....Letcher
Wagar, E. N.........Bijou Hills
Waldner, J. L. ....Parkston
Wallis, S. R............Mitchell
Walsh, J. M..........Rapid City
Waterman, J. C...........Burke
Weishaar, C. H.......Aberdeen
Wendt, C. I. ....Canton
Westaby, J. R. ....Madison
Westaby, R. S...........Madison
Wheelock, D. O.........Miller
White, E. W.............Ipswich
Whiteside, J. D........Aberdeen
Whitney, L. D.......Aberdeen
Willhite, F. V...........Yankton
Williams, C. A. ....Doland
Williamson, W. R........Nemo
Wilson, F. D. ....Armour
Wilson, R. D..........Aberdeen
Wood, T. J..............Huron
Wright, O. R.............Huron
Yoskit, Harry.......Hot Springs
Young, B. A.......Hot Springs
Young, E. M. ....Mitchell
Zetlitz, Arne.......Sioux Falls
Zetlitz, K. A. L......Sioux Falls
Zimmerman, Goldie...Sioux Falls

THE PAST AND THE FUTURE: PRESIDENT'S ADDRESS*

By G. S. Adams, M.D.
YANKTON, SOUTH DAKOTA

Members of the South Dakota State Medical Association—Ladies and Gentlemen:

The responsibility which devolves upon me as president of this Association is duly felt and appreciated. If deprecation of my abilities for this distinction could be a requirement, I should meet it in full measure. Though unworthy, I am grateful indeed for the distinction you have conferred upon me.

Chapter VI of our By-Laws makes it the duty of the president to deliver an annual address. I, therefore, beg your indulgence and solicit your aid while I endeavor to discharge to the best of my ability the duties devolving upon the office.

In casting about for a subject upon which to address you, it seemed to me that this annual opportunity might be more fruitfully applied to a review of our progress in the recent past and the indications and hopes for the future, rather than to the treatment of any definite topic, and, with this in mind, I shall attempt to outline, quite informally and in a general way, the perspective as it appears to me.

I shall not take up much of your time, nor shall I touch upon anything new, but, because of their growing importance, only reiterate some plain truths that may even appear hackneyed and threadbare to you.

A distinguished Southern surgeon used in his presidential address before a society of medical men this forceful language: "Rigid self-inspection is the surest method of keeping sound, whether in theology or medicine, and it can but be to our advantage to overhaul ourselves now and then, and find out what we really are, what our motives and purposes are, and what we are doing to attain the things we stand for."

The purpose of our Association is to federate and bring into one compact organization the entire medical profession of our state. The district society is the unit of organization, and the foundation of everything above it. Our first obligation, therefore, begins with our district society.

Qualification for membership in our district societies is sufficiently broad to include practically every registered physician within the state.

It is estimated that there are within the state over six hundred registered physicians in active practice. The total membership in our State Association is but 332. One year ago at this time our membership numbered 337. The proportion of members to the number of physicians in active practice is far too low. Our membership should be 100 per cent, where, as a matter of fact, it is but 50 per cent. Why is it that our membership is not larger? Are we living up to our fullest obligations in not making a greater effort to secure the application for membership of every eligible physician within the state? These are questions we should ask ourselves, and then see to it that every physician who has not affiliated himself with a district society be shown the advantage of such a membership and be urged to join. According to our By-Laws, each District Councilor is "organizer, peacemaker, and censor" of his district. It is really upon him that this responsibility rests. Because of the rather large territory composing our districts, it is difficult, and, in many cases, impossible, to reach every physician. It would seem to me that a committee on membership might be included among the standing committees, under the By-Laws of our District Societies, who would be responsible for this part of the work and make it more effective. This responsibility should be definitely placed and effectively executed.

Of equal importance as membership is the matter of attendance. Membership pledges support of those things that promote advancement in all scientific, legislative, public health organizations and the social affairs in the profession. A non-attending member should be a contradiction; he should be a doer and not a dreamer "to the end that the profession may receive that respect and support within its own ranks, and from the community, to which its honorable history and great achievements entitle it."

Attendance is not only an obligation, but a privilege. It is also an opportunity to promote the exchange of ideas and ideals, to foster those friendly contacts that bring intimate exchange of experience.

Greater care might be exercised in the arrangement of our programs so as to make them more attractive and interesting to the general practitioner. The discussion of rare or unusual cases should be avoided as much as possible, and subjects considered which will be of the greatest help and value to the majority of our members.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association at Huron, S. D., June 16 and 18, 1922.

President Nicholas Murray Butler, of Columbia University, recently said that "the very business of physicians and surgeons isolates them intellectually, that their contacts are largely limited to men and affairs related to their calling, and oftentimes they lose the advantage of the stimulus that would come from wider and more numerous contact." While this may be true, I am very much inclined to the opinion that we really do not mingle enough with each other; if we could know and understand each other better, many of the little jealousies which often exist in our minds, and cause so much trouble, would be overcome. If we would be a little less critical, more constructive, and less pessimistic, and endeavor to aid each other a little more, then we would eliminate much of the criticism which exists among us, and avoid that which is directed toward us by the public at large.

I wish again to call your attention to the need of a full-time secretary. Your two preceding presidents, Dr. R. D. Alway and Dr. Harry T. Kinney, have urged this necessity and have made strong pleas for the employment of such an official as being essential to the proper growth of the Association. Because of our comparatively small membership, the matter of financing the plan seems to be the principal objection. I think we are all agreed that it should be done. The question is, How can it be accomplished? There seems to be strong objection on the part of some to the further raising of the annual dues. Personally, I feel that the amount of the dues should be increased to the extent that would make this accomplishment a fact. We cannot expect to get out of our organization any more than we put into it. There is scarcely a successful business man today who does not contribute to his business and trade associations many times more than the amount of our annual dues, for the promotion of his own individual business interests. The cost would be insignificant compared with the benefits that would accrue. The financial burden at first might seem great, but, I am sure, would become gradually lighter, as our Association increased in numbers.

If we expect to "guard and foster the material interests of our members, and to protect them against imposition, and to enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself and more useful to the public," as defined under the purpose of the Association, in our Constitution, then we must improve our organization, and I believe that one of the first steps in so doing, is by securing a full-time secretary. Only as our Association serves will it succeed.

The layman cannot conceive that the members of the medical profession will fight unselfishly for the public. He always misinterprets the motive and is convinced that we are fighting for ourselves, selfishly. The medical profession and the public are not in sympathy with each other. The public is becoming more and more hostile and antagonistic, and this attitude is finding expression in vicious medical laws. We should be more active in educating the public and to enlist their co-operation in matters of public interest and welfare. If the public understood our principles of ethics and our reasons for them we would have gained a large advantage and overcome much of the prejudice that is now directed against us. This can only be done by securing the confidence of the public by means of an educational campaign.

It is only by proper organization and complete unity of action, on our part, that we can hope to secure from the laity the support that is necessary in matters of legislation and public health, as well as for those things for the betterment of the profession. Progress is made by evolution, not by revolution.

Our Committee on Public Policy and Legislation should have a well-defined, comprehensive, and constructive program worked out, with which every member should be familiar. By getting solidly behind such a program, as an individual unit, we can assume the leadership and lead the public in the right way. I believe it is within our power to prevent and correct much vicious medical legislation in this way, rather than by going to the Legislature directly and fighting it out by ourselves, as we have done in the past. An educated and well-informed public will not tolerate the systematic plundering of the sick.

We must not relinquish the end in view. It may seem difficult to progress in a chosen road until more of the obstacles are removed, but by keeping at it, sooner or later, the path will be free: we shall see clearly and be rewarded with success.

It seems fitting at this time that some words be spoken in addition to formal resolutions, which will convey the esteem in which our recently lamented and beloved Secretary, Dr. Frederick A. Spafford, was held by this Association.

A few weeks ago, while he was arranging the program for this meeting, we were shocked by the tidings of his sudden and unexpected death.

He was a physician of broad attainments and power; dignified, yet companionable; scholarly, yet not pedantic; bold in conception; wise in judgment; lenient in criticism. He was an admirable example of that rarest of all human attainments, a highly developed and well-balanced organism, physically, mentally, and morally. His career has been a broad one, probably impossible of attainment at the present day, with its intensive methods and tendencies. You honored him as highly as it was possible for you to honor any man. He achieved distinction as a physician, educator, soldier, and student of nature.

It was the privilege only of those who came into contact with the man to know the richness of his friendship and to know the splendid quality of his inner life and the love of humanity which dwelt within his big unselfish nature.

His whole life was modest and unassuming, and a quiet earnestness marked all his work and his intercourse with others. In the passing of our friend and co-worker, the profession and the State have lost a commanding figure. What a debt we owe him for the service he has rendered! What a legacy his example! And in this connection I could refer to a host of men who have honored the medical profession of our state, many whom most of you knew, in whose lives we could find much inspiration,—Edwards, Mead, Brown, Babcock, and many others. We could well emulate their example in respect to loyalty to a definite purpose, stability, energy, and sacrifice of personal ease and gain, for the uplifting of the stricken of their race. These were the pioneers of yesterday, the general practitioners of a generation ago, that rapidly disappearing type, who knew the art of practice, and who loved work for work's sake. They were outstanding figures in their communities,—kind, gentle, dignified, of high ideals,—whose chief thought was service, that keynote of success in every undertaking.

Much has been spoken and written about the changing world. We are undoubtedly passing through an era of emotionalism. The process of evolution has probably influenced our profession to much the same extent as it has influenced the world at large. Happily, the spirit of unrest, which seems to have pervaded some portions of our country, has not affected our state to any great degree. The problems of socialized State medicine and subsidized community centers will probably not greatly affect us for a considerable time,—at any rate, not until our population thickens, and large industrial corporations make their appearance. I am thoroughly convinced that the medical profession is better today than it has ever been; that its standards are higher than they ever have been; and that the profession stands better in the public eye than ever before. The traditions of our profession, from the time of Hippocrates to the present, have bound us together in a spirit of sympathy and brotherhood that will, I am sure, endure and withstand any change that may yet come.

Therefore, let us be optimistic and earnestly and diligently strive to carry forward the work in hand, fully realizing this maxim of the Talmud, "The day is short and work is great, the reward is also great, and the Master passes. It is not incumbent on thee to complete the work, but thou must not therefore cease from it."

A CASE OF LEVULOSURIA

By W. E. Nicely, M.D., and
C. C. Edmondson, M.D.
WAUKESHA, WISCONSIN

Miss H. C., aged 25, school teacher, came to The "Spa" on February 7, 1922, for treatment for diabetes mellitus. Sugar was first found in the urine in October, 1920. She had been under the care of a physician since then, following a restricted diet, with little success, having been sugar-free only once. She also complained of "indigestion," that is, of a burning sensation in the stomach, coming on after meals, accompanied by belching of gas, and lasting for several hours at times.

Family history: Both parents are living. The father is in good health. The mother is in fair health, suffering more or less with "stomach trouble," which is not very clearly described and is not provoked by any particular food. She has had this trouble for many years, and is better in the last four or five years than formerly. The patient has one brother, younger than she, who also has some sort of "indigestion" at times. The father of the patient and a paternal uncle have been overweight.

Past personal history: Chicken-pox in childhood; scarlet fever (?) at the age of 10; pertussis at 12 or 13; measles at 16; "flu" at 23, about Christmas, 1919, when she was sick about two weeks. Otherwise, the patient has been healthy. She has had more or less nasal catarrh all of her life. For the past two years the skin has been irritable, a scratch or other irritation bringing out a whitish-pink elevation, apparently similar to an urticarial wheal, but *without* itching, lasting from a few minutes up to fifteen minutes. She has perspired more freely during the past two years. Some acne-like lesions or folliculitis have appeared on the face and back, coming in crops, lasting several days, and succeeded by a new crop. No relation of the skin manifestations to food or season has been noticed. She has never had any surgical operation. Habits: Somewhat constipated for years. Laxatives are necessary for results. Constipation is relieved somewhat in the summer by use of fresh fruits and vegetables in the diet. The constipation is aggravated by inability to respond to desire when teaching school. She does not drink much water. No nycturia. Menses began at age of 14 or 15, came every five weeks, with slight irregularity, until about one and one-half years ago; since then the period has been regular every four weeks, lasting three or four days. Leucorrhea of varying degree has been present most of her menstrual life. She has lived in the country, in southwest Michigan, all of her life. She has never traveled.

Diet before treatment for diabetes:

Breakfast: Oatmeal with cream and sugar.

Dinner: Potatoes, meat, bread, butter, pie, cake, vegetables.

Supper: Potatoes, bread, butter, vegetables, cookies, etc.

Between meals: Fruits often. Very little candy. Liked apples and bananas.

Present complaint: For the past two years she has been troubled with burning sensation in the stomach and flatulence. This has been a qualitative food dyspepsia. Sweets, cakes and molasses disagreed first; then sour foods, such as lemons, vinegar, tomatoes in excess, sour pickles, rhubarb in moderate amount, sour plums. Oranges and grapefruit are tolerated. Among the vegetables which disagree with her are onions, cooked cabbage in moderate amount, and radishes. Occasionally, white bread seemed to act in the same way.

In October, 1920, when she went to a doctor for treatment of the dyspepsia, sugar was found in the urine. She was accordingly put on a restricted diet—"no starch or sugar," meat, eggs, vegetables, gluten bread, and apples, without any limitation as to quantity. Actual starvation was not tried. The urine became sugar-free only once.

About one year ago, one evening after supper, she felt chilly, went to sleep early, and awakened feeling nauseated, with vomiting and diarrhea soon following. The next day she felt weak, but well otherwise. Had one other similar lighter attack last summer. No pain at any time, except transient "gas pains." No jaundice ever noticed. No diarrhea at any other time. Sometimes, without any laxatives having been taken, the bowels move several times freely. She has never had worms, nor lived in a locality where people had worms, so far as she knows.

Soda was used to relieve the burning and flatulence for a while, but has failed. While taking medicine given by her doctor, the indigestion was better, but relapsed on stopping the medicine. (Pills after meals.)

Physical examination:

Height, 5 ft. 6 in.; weight, 124; highest weight, 143, in 1917.

General appearance: Fairly well-developed and nourished girl, looks healthy.

Skin: Papulopustular lesions on face, back, and legs. Skin otherwise smooth and of good turgor.

Musculature: Good bulk and tone.

Eyes: Pupils equal, regular, react normally. Eye muscles show good function, except O. S. turns out on extreme convergence. No diplopia.

Glands: None palpable.

Mouth and throat: Tonsils of moderate size, somewhat ragged. No material could be expressed from the crypts.

Teeth: Clean. RU4568, LU45678, RL67, LL568 are out, extracted because of decay. Gums show slight shadows on transillumination. Slight retraction in places. No bleeding on brushing.

Pulse: Regular, soft, quick. Arteries: Normal to palpation.

Heart: Apex-beat faintly felt in about normal location. Sounds of fair quality, first a little diminished in tone. P2 greater than A2, sharp, slightly accentuated, and reduplicated in the pulmonary area only.

Lungs: Negative.

Abdomen: Negative.

Reflexes: Active and equal.

Extremities: No edema of ankles now. Some swelling has been noticed at night, after standing much of the day teaching school.

Blood pressure: Systolic, 120; diastolic, 85; pulse pressure, 35.

Laboratory tests:

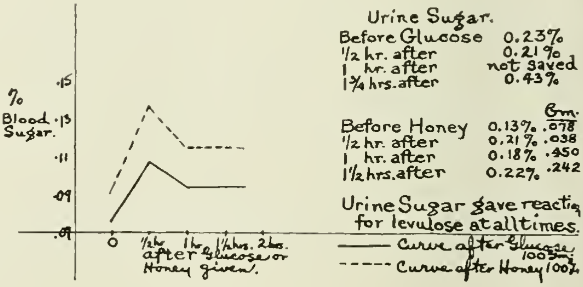
Blood count: Red cells, 4,864,000. White cells, 8,200. Hb., 80-90 per cent. T. Differential: Polymorph., 52 per cent; lymphocytes, 36 per cent; large mononuclears including transitional, 10 per cent; eosinophiles, 2 per cent.

Urine: 24-hour specimens daily. Amount: 1,200 to 2,900 c.c.; specific gravity, 1,010 to 1,023. Reaction, acid. Albumin, trace to 0. Sugar, trace to 0.33 per cent; free on one day only. Ferric chloride reaction (Gerhardt), positive on four days, other times negative. Microscopic examination, few epithelial and pus cells, phosphate crystals.

Blood: Blood sugar determinations—

	Per cent		Per cent
2-11-22	0.108	2-16-22	0.082
2-13-22	0.091	2-20-22	0.074

Glucose tolerance test:



Examination of the urine more carefully by chemical test, showed that the reducing sugar gave the reactions of levulose,—with the polariscope, with Seliwanow's reagent, in Borchardt's test, etc. It was differentiated from the pseudolevulose described by Cammidge. The finding of a levulosuria suggested the testing out of the tolerance for levulose. Accordingly, honey, which contains about 71 per cent invert sugar, of which about 35.5 per cent is levulose, was fed. The amount given was about 100 gm., representing therefore about 35.5 gm. of levulose. The blood was taken, and the blood sugar determined as before. The results are shown on the same chart as those of the glucose tolerance test. The urine sugar at all times gave the reactions of levulose. The urine was examined repeatedly and thoroughly.

Following the ingestion of the honey, the blood sugar again did not rise above what may be considered normal. It did, however, rise higher than when only glucose was given. As only about 35 gm. of glucose (dextrose) and about 35 gm. of levulose were given the latter time, the higher rise was interpreted to be due to a failure in slight degree to store or utilize levulose, or convert it into dextrose,—that is, a lowered levulose tolerance.

The diet on entrance was a restricted diabetic diet of about 1,000 calories daily, with about 10-15 gm. of carbohydrate. It was raised to a diet of about 1,800 calories daily, with about 50 gm. of carbohydrate. Later, a general mixed diet was given, omitting only cane sugar and the fruits containing the higher percentages of levulose.

The patient was instructed in the proper general hygiene. Control of constipation and the use of mild alkalies gave considerable relief from the dyspepsia. The patient went home, but sends weekly reports to us, including the sending of a urine specimen. Each specimen during the last six weeks has shown from 0.20 per cent to 0.30 per cent of sugar, still levulose. The patient says she feels fine and is gaining some weight. She will be watched with interest over a period of years, to see what the further course of this disorder will be.

This case shows that a diagnosis of diabetes mellitus can not be made always from the presence of reducing sugar in the urine alone. A thorough study of both urine and blood, together with the effect of diet regulation, is necessary. Rather rarely cases of pentosuria and levulosuria have been reported, and lately cases of so-called "renal glycosuria." These conditions seem to require no special treatment. They must be differentiated from mild cases of diabetes mellitus, in which care as to diet is of highest importance. Attempts to reduce the diet in the former cases sufficiently to rid the urine of sugar, even if that were always possible, might easily be carried to an extreme of starvation, unnecessarily.

Pentoses may be distinguished by the absence of fermentation with yeast, the reaction with orcinol-hydrochloric acid (Bial's teat), the reaction with phloroglucinol-hydrochloric acid with further distinction from galactose or glycuronic acid, and the formation of pentosazone crystals with phenylhydrazine and determination of their melting point. Levulose may be differentiated from glucose by the polariscope, if in sufficient quantity, by Seliwanow's reaction, Borchardt's reaction, and the formation of methylphenylfructosazone, and determination of the melting point of the crystals.

This case suggests many questions for further study. The low blood-sugar range, even after the ingestion of sugars, indicates that sugar is used, stored, combined, or otherwise disposed of, at least as well as normally, yet, still the kidney excretes levulose. Should we not also consider the relations of the sugar in the blood to the total blood volume and to the sugar in the urine? Where does the sugar in the urine come from? Is the permeability of the kidney selectively diminished for levulose? If levulose is simply not used in this body, why does it not show as an excess in the blood before it reaches the kidney? Or is it formed in the kidney, or there split off from some combination with protein or other substance, in which it escapes detection in the blood? Is it possible that there may be substances in the diet, which cumulatively affect the kidney and lower its threshold for the excretion of dextrose, or levulose, as the case may be, similar to the effect of the glucoside phloridzin, used in experimental work on dogs? Furthermore, since the liver is believed to be the organ concerned with the transformation of levulose into dextrose, or to glycogen, may not the levulosuria be considered a result of liver insufficiency, in that respect at least? Is there any relation between the liver insufficiency and the dyspepsia complained of? More observations on the utilization of levulose in normal individuals and in diabetics are needed.

The "Spa"
Waukesha, Wisconsin

THE
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Represents the Medical Profession of
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The Official Journal of the
North Dakota and South Dakota State Medical Associations

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THE INTERSTITIAL GLAND INDUSTRY

The newspapers are enjoying a certain amount of vacation activity by publishing what they feel is the news that the people want, namely, the rejuvenation of the aged, the sexually infirm, and the men who have wasted their lives in riotous living.

It is admitted that some of the information published is very newsy, and doubtless the public are absorbing it with their usual zest for anything that is peculiar, suggestive, or appeals to their vivid and sometimes their unwholesome imagination. Then, too, it gives certain surgeons an opportunity to display their wares to the public undressed, as it were; and yet nothing has been actually published on this subject in medical journals that has attracted much attention among medical men.

Dr. Frank Lydston, of Chicago, was one of the early experimenters in the transplantation of tissues and particularly in the transplantation of glands. Other equally good men have experimented in this line of surgery, and they claim to have been more or less successful, but no one makes any extravagant promises as to results.

Doubtless this method of transplantation of glands has been going on for many years; perhaps it was known to the ancients, so that there is nothing definitely new about it except that it is getting into the daily press, and as the method or manner or application of the transplantation of interstitial glands has never been clearly exploited, the public are glibly talking on the subject, and men and women alike discuss it in public or in private, not knowing really what they are talking about. It is rather amusing sometimes to hear a woman in a doctor's office who comes to him for consultation opening up the subject of "monkey glands," and really in a perfectly innocent manner, because she does not know what it means. If she did know that it means the transplantation of the testicles of an animal or a human into the scrotum of a testicularly infirm man she would hesitate before she got any further in her monkey-glandular conversation.

The most striking example of the transplantation of glands was an exhibition of what seemed to be a full-fledged, full-grown rooster that was exhibited in the scientific exhibit of the American Medical Association when it met at New Orleans. The experimenter, a man who is well known in the research field, told of taking a hen in its chickenhood and transplanting in its abdominal cavity the testes of a rooster after he had extracted the ovaries of the hen. This "she-hen" grew into a "he-rooster" to all appearances. Coxcomb and feather display and size and form and shape was evidently that of a rooster, and yet *he* was a *hen* originally and remained a hen as far as the genitalia were concerned.

If an experiment can be carried out in the lower animals why not in the human family, so these men argue. And they carry out their experiments evidently successfully in at least a few of their cases. One man reported a dozen cases in which about 50 per cent were restored and rejuvenated so that they were able and capable of expressing themselves sexually. Of course, many experiments on the male genitalia have been made in penitentiaries where the transplantation can be carried out with a definite object in mind, a rejuvenation from the secretions from a transplanted gland, and the patient feels an increased vigor and a youthful sensation regardless of his sexual desires, so that, really, the prime benefit which is derived from the transplantation of glands is for the purpose of pouring into the blood the secretions from a new and healthy organ in one who is possessed of atrophied testes. It is not a primary but a secondary benefit that restores a man to sexual vigor or for the purpose of reproduction; and yet, since this newspaper discussion has become so notorious, there has been much objection raised among the clergy, for they claim that it is a sin morally to transplant glands from a living subject to one who is incapacitated with the assumption that they fear that the rejuvenated man may become loose in his morals; but, as a matter of fact, the prime object is to give him a new feeling through his blood-stream. It makes him more hopeful, more cheerful, and increases his mental and bodily activities regardless of his sexual organs.

The usual procedure in cases of this kind is to put the man who is to receive the transplantation in an emergency ward in a hospital, and when an accident case comes in that means sure death the glands of the injured man are transplanted into the scrotum of the man who is feeble. If the growth is right and the transplantation is a success, the man recovers a certain amount of youthful feeling. This, of course, might be called the exception rather than the rule because the large majority of tests are made upon individuals who are not fit for the operation and in whom the transplant does not grow. It is quite probable that much misinformation has been given the press in regard to the "Chicago case," both as to procedure and purchase.

Under the circumstances it is difficult to see why anyone really objects to the experiment. One objection advanced is that no man has any right to sell his glands to another man; and that is true enough. It is not necessary to deprive any man of any sense of his organs, even though the recipient is willing to pay for them, and any man who would sell his organs for transplantation purposes is a fool or a defective, and who wants the glands of a defective transplanted into anyone?

In one of the Western prisons they have adopted a little different method, according to newspaper stories. They imbed slices of the gland under the flesh, and they give a hypodermic injection of glandular substances into the tissues and claim that they get just as efficient results and with less danger of failure than by the transplantation method. In these cases they use the glandular substance of a ram, and they claim that their patients reported rejuvenation, increased mental and bodily activities, and that the patients were much more cheerful. The operation takes but a few moments, the patient is quiet for a day, and then he is about his work again.

These operations and reports stimulate a lot of derelicts to try the experiment, and, unfortunately, too, it stimulates a lot of pseudosurgeons to operate on a lot of people and do their transplantations when really unnecessary.

THE FAT AND THE LEAN

The attitude of the over-fat or the extremely slender individual toward his fellow-man is one of great interest. It consists of being peeved because one dares to address the fat one in terms of over-confidence, and ridicules the lean one to the point of overbearance; and yet neither of these unfortunate individuals is to blame except in a few instances.

One talks about reducing, and the women who can afford it have all sorts of apparatus with which to try the reduction method. They wear rubber suits to sweat off their extra fat; they take hot sweat-baths, vigorous and active massage, and sometimes over-violent exercises, with the vain hope that they will experience a substantial reduction. In some instances the result of careful dieting and careful and persistent exercise is a gain of two to ten pounds.

Some people who race over the country on horseback or who take long walks come back, and, whether they eat much or little, their weight goes up; the other extreme is true frequently in the case of the extremely lean person who exercises to get fat and again takes long walks and eats to the point of "stuffication," all to no purpose. They gradually lose a few ounces, sometimes a few pounds. Then the doctor is consulted as to what should be done. The lean one is urged to go to bed to rest, and, under competent care and attention, to be massaged and to be overfed, and she lies there day after day and gets up weighing a little bit less than when she went to bed. The fat one is urged to do the same thing, partake of a strict diet and to take in some cases a number of grains of thyroid extract daily. The result is that the fat lady may increase a little in weight under such good care, or she may lose several pounds; and then to celebrate her improvement she goes off on a riotous method of eating, and in less than a week she puts on what she so carefully took off,—her fat.

As a matter of fact fat people eat but little and get fat in spite of it; thin people eat too much and remain thin. After a few endeavors on the part of physicians and surgeons of various kinds, the fat and the lean go their own way and let nature take her course. In only a few selective cases can the fat person be reduced or the lean person be increased in weight. This is presumably determined by the metabolism tests; but as a matter of fact it is better determined by some historical facts which show the tendency of the individual, and, if these facts are well established, it is largely a waste of time to go through any form of treatment.

The writer recalls a patient who sojourned in a sanitarium for three months and gained twenty pounds, came back home, and suffered from a grave form of toxemia. It required a week to get the metabolism re-established so that the individual could lose some of the presumably precious pounds which had been so dearly paid for.

The idea of fattening thin people rapidly and reducing fat people quickly and successfully is not good medicine. It means that there is something wrong in the attitude of the physician and in the constitutionality of the individual. As a rule fat persons can eat a little less, restrict their diet to those things which are not especially fattening, and exclude from their diet all the foods that are overfattening and gradually lose in weight; but, again, this is the occasional case, and not the rule. It is the exception and not the rule that wins.

A man who weighs 250 pounds and who is overfeeding and over-sleeping, and in consequence thereof is poisoned by his own secretions, is the man who will stand a strict dietary; and it does him no harm to exclude food and much liquid for several days, to provide him with only a little fruit juices and perhaps something to keep up his nervous activities, and then gradually begin to feed him from a rational diet list. He thus loses in weight slowly, gradually, and naturally, and by this same process his toxemia clears away, and he resumes his normal business in a normal manner; but, again, he is the exception.

The writer recently heard of a woman of high social position who had been a nervous invalid and overfed for many years. She was given a diet of buttermilk and turnip tops, and did the regular household duties of the establishment, and made a full and complete recovery in two months. She, again, was the exception to the rule. It is hard to find a woman who will be willing to serve her stomach with buttermilk and turnip tops and do a definite amount of work at the same time; that is why she is the exception.

The decrease in weight of a fat person should be much more gradual than is commonly believed. From one-half to one pound a week is sufficient; and, vice versa, the lean person should be satisfied to gain the same amount.

However, there is comparatively little danger in either event, whether one is fat or lean. Fat people, as a rule, are much more comfortable to get along with. The lean person is apt to be irritable, sometimes unmanageable, and occasionally very, very difficult. The only real answer to the question whether one should be fat or lean is one of common sense and ordinary judgment.

THE SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The meeting of the Southern Minnesota Medical Association at Rochester on June 19 and 20 marks the highest point of attendance and the most successful meeting that has ever been held by this association. There were 420 men registered. If the entire staff of the Mayo Clinic attended the afternoon meetings and if all those registered were present, the attendance would have been between 700 and 800 people.

With such a society backed by its thorough organization the State Association seems to fall into the background; and it behooves the men of Minneapolis who are to entertain the State Association in October of this year to look to their laurels. In the case of the State Association there will be no question about the amount of clinical material available nor any question about the number of papers that will be offered; but, if the meeting compare favorably with that at Rochester, a great deal of work must be done between now and the fall month of meeting. Of course, Rochester is fully equipped for clinics of every variety, and the reports that reach us justify the statement that no such clinics have ever been given before in Rochester.

The afternoon meetings, as well as the discussions on medical topics in the forenoon meetings, were very largely attended. They were attended because the addresses were from men from all over the country, and, doubtless, they too were attracted to the meeting by the reputation of the Mayo Clinic.

One very good feature about the meetings in Rochester was that all papers were presented without discussion. The average man who gets up to discuss a paper may talk reasonably clearly and seemingly to the point, but when his discussion comes out in cold, dead print he looks upon it with holy horror and wonders whether it is possible that he ever spoke in such a vein, or that he could have made so many phraseological and grammatical errors, hence a symposium of prepared papers without discussion is greatly to be desired.

Every clinic room was filled to capacity at both medical and surgical clinics, showing the interest and the activities of the medical man to learn as much as he could in the shortest possible space of time. Physicians have so many medical meetings to attend now that they ought to be thoroughly educated after a year or two, and unless the attendance is either curbed or regulated by admission tickets, issued only to those who are really medical men, it is possible that the various cults that are in a state of more or less activity will take advantage of the clinics and learn something themselves. This was found to be true in the American Medical Association, which met at St. Louis recently.

We shall all look forward to the next meeting of the Southern Minnesota Medical Association, and speculate as to whether it can be made as successful as the one just held in Rochester.

PHYSICIAN, BE A GOOD SPORT

Though the caption of this editorial smacks of slang, the editorial is a sincere appeal, with a reason, to every physician in the Northwest to be a good sport—a *manly* man, such as the true sportsman always is. Perhaps one or two concrete illustrations will emphasize the point we wish to make.

The distinguished Indiana novelist, Meredith Nicholson, recently wrote a humorous article on the teaching of English. Principal Taft, of the Taft School (Watertown, Conn.), thinking the article capable of doing much harm, requested Professor C. H. Ward, head of the English Department of the Taft School, to write a reply to the article. A reply was written and submitted, before publication, to Mr. Nicholson, who acknowledged his mistake in a manly letter. The reply and Mr. Nicholson's letter appeared in the February *Scribner*. An editorial note in the same issue of the magazine informs us that Professor Ward and Principal Taft, upon reading the letter, exclaimed: "Talk about sportsmanship! The prince of good sports seems to live in Indianapolis." And another: The English are notoriously good sports, and an illustration of this fact is found in an article in a recent issue of another magazine, *The World's Work*. Mr. Walter H. Page, our former ambassador to England, says that he saw on the walls of the office of the English Foreign Secretary of State the cancelled fifteen-million-dollar check given by the English Government to pay the claim of our Government for damages done in the Civil War by the English steamship "Alabama." The check tells the story of a great wrong done by a few officials and paid for by a nation of good sports.

The above is a mere introduction to the editor's "preachment" on good sportsmanship.

The medical profession is a very honorable one, and it gives the world more gratuitous service than does any other profession. This service is given by every member of the profession and by organized efforts exerted through medical societies,—county, state, and national. These societies have also done much for every member of the profession. They have maintained ethical standards and fixed, through public sentiment, reasonable fee-bills, or charges for services, varying in character and beyond the services rendered by any other class of men. As Dr. Adams, of the South Dakota State Medical Association, says in his presidential address, which appears elsewhere in this issue of THE JOURNAL-LANCET, membership in them "pledges support of those things that promote advancement in all scientific, legislative, public-health organizations and the social affairs in the profession."

In spite of these facts—in spite of the possibly sordid fact that medical societies have increased by hundreds, sometimes by thousands, of dollars the income of every physician in the Northwest—nearly 50 per cent of the physicians of the four states in which this journal mainly circulates,—the four best states in the Union, medically speaking, at least,—do not belong to these medical societies.

Is it fair, is it good sportsmanship, is it *manly* to receive such material benefits through an organization and then to fail to support such organization by membership in it and by contribution to its financial maintenance?

There is but one answer to this question, and yet 50 per cent of our physicians answer it otherwise.

LAY MEDICAL MAGAZINE

The American Medical Association proposes to publish regularly a lay medical journal, in order to inform the general public on questions of general health. The American Medical Association has published so many journals heretofore of a truly scientific kind that they can well afford to publish something that the people will read. It is claimed, and justly so, that the public are very hungry for information that will be authentic and keep them in good health. Doubtless this is a very wise procedure, in spite of the fact that we have more journals of all kinds than we can possibly read, and the public is surfeited with magazines of all types,—good, bad and indifferent, mostly bad.

Then, too, in order to emphasize the necessity of a lay public-health journal, Dr. Frederick Green, who has been so long secretary of public health and education in the American Medical Association, with two associates, is to begin immediately the publication of this sort of a journal. In this we wish him all manner of success. He is amply qualified from personal contact with organizations and professional and lay bodies to carry out this work. If *The Farmer's Wife*, which is published in St. Paul, can obtain a subscription list of 750,000, why it is not possible for a public-health journal, at a very modest price, to attain an equally large circulation? It ought to be the organ whereby many public-health activities can reach the public, at the same time giving them something definite, authentic, and useful.

It takes a courageous man and a courageous organization to attempt such a thing as this, but it has been shown that it can be done, even if it requires a little time and a great deal of effort to put in on its feet.

NEWS ITEMS

Dr. Elmer H. Hansen, of Minneapolis, was married last month to Miss Mary E. O'Brien, of Cloquet.

The plan for a hundred thousand dollar Methodist hospital at Wadena is being pushed with great vigor.

Dr. H. L. Lamb, of Sauk Centre, has returned to the city after taking a postgraduate course in eye, ear, nose, and throat work.

Dr. J. L. Cook, of Cedar Rapids, Iowa, has returned to White Lake, S. D., to resume practice after an absence of several years.

Dr. R. H. Sweetman, of Menahga, has purchased a residence in Sauk Centre, which he will remodel and use for a general hospital.

Dr. D. C. Balfour was elected vice-president of the American Surgical Association at the recent meeting held in Washington, D. C.

The date of the annual meeting (1922) of the Minnesota State Medical Association has been changed from October 3-5 to October 12-14.

At the recent meeting of the Central Neuropsychiatric Association at St. Louis it was voted to hold the next meeting in Rochester, October, 1922.

The Western Central Minnesota Medical Society met in Litchfield last month. The members were entertained at the Robertson cottages on Lake Ripley.

The St. Cloud Commercial Club has started a movement for the erection and maintenance of a tuberculosis sanatorium, with state aid, for the central counties of Minnesota.

Professor Ernst Fuchs, of Vienna, gave a Mayo Foundation lecture at the Mayo Clinic, June 9. His subject was, "Syphilis and Its Relation to Diseases of the Eye."

Dr. Ellsworth Johnson, of Windom, was married last month to Mrs. Carolyn H. Clark, of St. Cloud. Dr. Johnson is a graduate of the Medical School of the University of Minnesota.

The mid-summer meeting of the Southern Medical Association at Rochester was very largely attended, and the program was excellent. The meeting is noticed in our editorial columns.

The Health Promotion Committee of the Board of Education of Minneapolis announces that a complete survey of the state of health of 40,000 public school children will be made next year.

St. Luke's Hospital of Duluth has plans for the enlargement of the hospital to give it a capacity of 200 adult and 22 children patients and a nurses' training-school to provide for 100 nurses.

The More Hospital of Eveleth receives $1.25 per month from the employes of the city for care during sickness or accident. The contract is made with the city, and it gives the hospital over $2,000 a year.

Dr. H. Berglund, of the Department of Biochemistry, Harvard Medical School, gave a Mayo Foundation lecture in Rochester, June 1. His topic was, "The Chemistry of the Nonprotein Nitrogen of the Blood."

Dr. F. L. Jennings, of the Glen Lake Sanatorium, of Hennepin County, took part, by special invitation of the Wisconsin Anti-Tuberculosis Association, in a large chest clinic held in La Crosse, Wis., last month.

The Mississippi Valley Medical Association will meet in Rochester October 10 to 12, 1922. Dr. Frank Kidd, of London Hospital, London, England, will present a paper, "The Treatment of Tumors of the Bladder."

The Lymanhurst School for Tuberculous Children graduated three pupils last month. These pupils will take a physical examination in the fall, and if they pass they will continue their education along vocational lines.

A representative of the American College of Surgeons has been visiting the hospitals of Kalispell, Mont., for the purpose of rating them for standardization. Hitherto only 100-bed hospitals have been rated. The 50-bed hospitals are now rated.

Dr. J. M. Boyd, of Caledonia, has given up practice for an extended course of advanced work in internal medicine in the Iowa College of Medicine. Dr. Riley, of La Crosse, Wis., a graduate of Marquette, will take over Dr. Boyd's practice at Caledonia.

Dr. A. G. Long, formerly of the Medical School of the University of North Dakota, who resigned to take a year's postgraduate work in public health nursing at Harvard, has been appointed director of the laboratories of the Indiana State Board of Health.

Professor August Krogh, the celebrated physiologist of Copenhagen, will visit the University of Minnesota and the Mayo Foundation next fall. The tentative dates at the University are October 19, 20, and 21. The title of his lectures will be "On the Distribution, Structure, and Function of Blood Capillaries."

Dr. G. B. New was elected a member of the board of directors and vice-president of the American Laryngological, Rhinological, and Otological Society at a recent meeting held in Washington, D. C. The next meeting of the middle section of the society will be held in Rochester, February, 1923.

The physicians and druggists of Fergus and Judith Basin Counties, Montana, held a joint meeting at Lewiston, Montana, last month. Every physician and druggist of Lewiston and most of the physicians and druggists of the two counties attended. A 100 per cent meeting will be held some day somewhere.

The Medical School of the University of Minnesota is opening a course in Preventive Medicine, of which Dr. S. H. Diehl is the director. Its purpose is to teach the fundamental principles of health and disease to school teachers, public-health workers, and students of home economics. Lectures will be given by specialists in these lines.

Dr. R. O. Beard, of the Medical School of the University of Minnesota, has been east delivering addresses before conventions of nurses in Boston and other places, and last week he delivered an address before the biennial meeting of the American Nurses' Association at Seattle. His subject was "The Education of the Nurse."

The Community Hospital of Hutchinson received $325 last month in a unique manner. The Citizens Bank of Hutchinson gave a birthday party and presented, by lottery, two purebred bulls to its guests. The successful ticket holders gave the bulls to the Community Hospital, and they were sold by auction, netting the above amount. A bull market benefits somebody.

The second annual meeting of the Northern Minnesota Medical Association met at Detroit last month with a somewhat larger attendance than that of last year. Officers were elected as follows: President, Dr. C. B. Lewis, St. Cloud; vice-president, Dr. C. N. Callander, Fargo, N. D.; secretary-treasurer, Dr. W. L. Burnap, Fergus Falls. The meeting of 1923 will be held at Alexandria.

The fifty-fourth annual meeting of the Wabasha County Medical Society will be held at Wabasha next Thursday (July 6). A complimentary dinner will be served at the Buena Vista Sanatorium, and the papers on the program will be read in the afternoon. They are by local men except one by Dr. George E. Fahr, of the Medical School of the University of Minnesota. This paper is on "The Present Status of Digital Therapy."

The Sioux Valley Medical Association held its annual meeting in Sioux Falls, S. D., last month, when the following officers were elected for the coming year: President, Dr. C. C. Gross, Yankton, S. D.; first vice-president, Dr. L. L. Corcoran, Rock Rapids, Iowa; second vice-president, Dr. A. C. Stokes, Omaha, Neb.; secretary, Dr. R. M. Waters, Sioux City, Iowa; treasurer, Dr. L. L. Corcoran, Rock Rapids, Iowa. The next meeting of the association will be held in January at Sioux City, Iowa.

Dr. Joseph A. Gates, of Kenyon, died on June 15 at the age of 52. Death was the result of an accident, his automobile being struck by a train near Kenyon. Dr. Gates graduated from the Medical School of the University of Minnesota with the class of '95, and at once began practice in Kenyon. He took an interest in civic affairs. He was mayor of Kenyon and was a member of the State legislature in 1905, 1907, and 1909, and was somewhat active in business matters. One of his sons graduated from the Medical School of the University of Minnesota this year, and another is in the academic course at the University.

Dr. Wilson, of the Mayo Clinic, has recently been awarded the Distinguished Service Medal for exceptionally meritorious service to the Government of the United States in a position of great responsibility during the World War. "As assistant to the Director of Laboratories and Infectious Diseases, A. E. F., and by reason of his exceptional organizing and executive ability, he organized most efficiently a pathological service throughout the American Expeditionary Forces in France that was of inestimable value to the medical and surgical services and the knowledge thus made available resulted in the saving of many lives."

At the request of Dr. H. E. French, Secretary of the North Dakota State Board of Health, the United States Public Health Service has assigned Surgeon Robert Olesen to duty in North Dakota for the purpose of establishing an adequate State department of health. Dr. Olesen has just completed a three-year detail with the Wisconsin State Board of Health, where he was instrumental in establishing a Bureau of Communicable Diseases and in improving morbidity registration. The plans developed by Dr. Olesen for the organization of the State Department of Health in North Dakota will be presented in an early number of THE JOURNAL-LANCET.

The following northwestern physicians registered in the medical short course of the University of Minnesota given for general practitioners: Dr. H. E. Allen, Geddes, S. D.; Dr. N. Philip Anderson, La Crosse, Wis.; Dr. Wm. Baillie, Hunter, N. D.; Dr. Baldwin Borreson, Bemidji, Minn.; Dr. L. E. Boutelle, Clear Lake, S. D.; Dr. C. F. Bower, Hartford, S. D.; Dr. P. B. Carter, Parshall, N. D.; Dr. Andrew Christianson, St. Paul; Dr. J. L. Dach, Reeder, N. D.; Dr. W. C. Dietrich, Hanley Falls, Minn.; Dr. R. E. Flynn, La Crosse, Wis.; Dr. O. F. Fisher, Houston, Minn.; Dr. Raymond P. Frink, Wagner, S. D.; Dr. E. C. Hoagenson, Grand Forks, N. D.; Dr. C. M. Johnson, Dawson, Minn.; Dr. S. A. Kleger, Mellette, S. D.; Dr. Chas. J. Lavery, Aberdeen, S. D.; Dr. Clarence E. Lommen, Fordville, N. D.; Dr. J. H. McClanahan, White Bear, Minn.; Dr. T. S. McClanahan, White Bear, Minn.; Dr. Aloys Mahowald, Prey, Minn.; Dr. E. L. Meyer, Minneapolis; Dr. N. G. Mortenson, St. Paul; Dr. Niels Nedergaard, Minneapolis; Dr. C. E. Reeves, Eagle Bend, Minn.; Dr. M. T. Savre, Northwood, N. D.; Dr. A. A. Skemp, La Crosse, Wis.; Dr. A. A. Stemsrud, Dawson, Minn.; Dr. N. C. Thimsen, Blooming Prairie, Minn.; Dr. H. A. Tash, Butte, Mont.; Dr. G. H. Walker, Fairfax, Minn.; Dr. Robt. S. Westaby, Madison, S. D.; Dr. A. A. Wipf, Freeman, S. D.; Dr. E. A. Zaworski, Minneapolis.

MINNEAPOLIS SANATORIUM FOR SALE

On another page of this issue will be found an advertisement of a Minneapolis sanatorium for sale.

LOCUM TENENS WANTED

A physician is wanted to take charge of a practice in a Minnesota village for a couple of months, beginning as early in July as convenient. Address 254, care of this office.

LOCUM TENENS WITH PARTNERSHIP IN VIEW WANTED

A well-established physician in a village of 900 in North Dakota wants a substitute for 30 days beginning July 15; prefers a single man. Prospect of employment as assistant or the formation of a partnership. Address 255, care of this office.

EXPERIENCED TECHNICIAN WANTS CHANGE OF POSITION

She is doing water analysis, stomach contents, spinal fluids, acidosis, and all routine laboratory work. Have studied blood chemistry, etc. Best of references. Address 252, care of this office.

PRACTICE FOR SALE

If taken before August 15, I will sell for invoice price of office equipment. Live town in Southern Minnesota. One other physician. Population, 1,000, in prosperous community of Germans, Scandinavians, and Americans. Collections better than 95 per cent. Residence, optional. Going to specialize. Fine location for Protestant. Address 253, care of this office.

OFFICE POSITION WANTED IN MINNEAPOLIS

By a thoroughly competent woman, who is a practical nurse and can assist in this way. A woman of refinement and good address, who can receive and handle patients in a successful manner. Best of references. Not a stenographer. Address 256, care of this office.

POSITION WANTED BY TECHNICIAN

A recent graduate from the Laboratory of the Minneapolis General (City) Hospital desires a position. Can do all routine laboratory work and general clerical work. Will go outside of the city to accept work, and will do so at a moderate salary. Best of references. Address 257, care of this office.

MINNEAPOLIS OFFICE FOR RENT AFTERNOONS

A general practitioner will rent his office for afternoons to a young surgeon. Office is fully furnished and equipped and is in one of the best physicians' buildings in the city. Rent reasonable. Address 248, care of this office.

PHYSICIAN WANTED FOR JULY AND AUGUST

A substitute physician for practice in North Dakota during July and August. Address 250, care of this office.

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BONE LESIONS AND THEIR TREATMENT*

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Our modern methods of diagnostic facilities have wonderfully allayed the anxiety of the surgeon in the proper treatment of fractures. It is no longer necessary to have several surgeons in consultation as to their diagnostic opinions, for the *x*-ray films place the pathology directly before the surgeon's eye as a permanent record. The prognosis, therefore, and the time of disability have clarified themselves to such a degree that a definite opinion as to the likelihood of favorable or unfavorable results can be made on the day the *x*-ray is obtained. Fractures in years past were looked upon as a bugbear, and a surgeon invariably wished that somebody else might have the case, but in the present decade a great many are just as eager to handle fractures as do general abdominal surgery.

CASES

FRACTURE OF SURGICAL NECK OF HUMERUS

CASE 1.—Painter P., aged 49, was injured July 2, 1920. He said: "I was painting outside of a house. The hook that the plank was hanging by loosened, and the plank fell. I fell to the ground about twelve feet."

The patient was first examined and attended by Dr. Alvin C. Tanner, who applied dressings and bandages in such a manner as to protect the sharp edge of bone from making a more extensive open wound. He then removed him to St. Mary's Hospital.

The upper one-fourth of the left humerus appeared as doubled up on itself and pushed upwards and outwards.

July 2: Radiographic examination, anteroposterior view, of left shoulder revealed an oblique and impacted fracture, with distal fragment in adduction and with proximal fragment in abduction of the surgical neck of the humerus,—in other words, the shaft of the humerus was impacted at an angle into the head of the humerus. The outer sharp edge of the distal fragment projected through the soft tissues and almost through the skin.

It was deemed advisable to delay open operative reduction, in order to allow the soft tissues to partly recover themselves from the trauma.

July 12: There was a sharp edge of bone projecting in front of the left shoulder—the distal end of the fractured humerus. The left arm was markedly drawn upwards, and the fracture was impacted. There was marked ecchymosis over the entire shoulder and arm. There was also ecchymosis over the left side of the chest extending from the shoulder down to the seventh rib.

Teeth: He had nine teeth and four stumps in the lower jaw; and five stumps and four teeth (three were loose) in the upper jaw. He was very robust and ruddy in appearance.

July 12: Operation under ether, assisted by Dr. A. C. Tanner and Dr. S. V. Hodge. The operative field was prepared with benzine and alcohol. A four-inch perpendicular incision was made from the outer end of the clavicle downwards over the bicipital groove. This incision was deepened to the fracture and the head of the humerus. The biceps tendon was encountered at the bottom of the wound, and dissection was continued to the outside of the bicipital groove, freely clearing the greater tuberosity from tissues. A three-inch transverse incision was made below the clavicle for free exposure. The skin was entirely protected from the wound by the suturing of towels around the edge of the wound with running silk sutures. The coracoid process was plainly visible. Dr. Tanner manipulated the arm, while Dr. Hodge assisted in the technic. The lower fragment was found to be outwards and forwards, while the head of the humerus was inwards and backwards. The fracture was somewhat oblique from above downwards and forwards. After freeing the head about the fracture and after freeing the upper end of lower fragment, followed by forcible flexion of the arm onto the chest with outward rotation and prying with an instrument, the lower fragment slipped back into position, that is, inwards and backwards. Blood clots were removed from the posterior part of fracture. In this position the upper fragment moved with the lower fragment on movement of the arm. The articular surface of the humerus was incised crosswise close to the greater tuberosity, and a drill-hole was made for the insertion of a four-inch spike through the head of the humerus into the medullary canal of the lower fragment. The head of the spike, on manipulation of the arm, had a tendency to slip upwards, which was prevented by inserting an ordinary suture of catgut over the cross-incision. The joint capsule was then united with a continuous suture of twenty-day chromic catgut, which was continued downward in the muscles of arm at lower end of wound. The deltoid muscle, which had been severed on the outer extremity of the clavicle, was united with twenty-day chromic catgut continuous suture, which was reinforced by another tier of four or five turns. Ordinary catgut, continuous suture, was used for muscular fascia from the upper to the lower end of the wound. The skin was closed in toto with twenty-day chromic catgut, blanket suture. Dry gauze dressing was applied and held in place with a bandage about the shoulder and neck. An aëroplane splint, thoroughly padded, was applied between the chest and the humerus, and the patient was put to bed.

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*Clinical lecture with demonstrations, presented at the annual meeting of the Soo Surgical Association, December 17 and 18, 1920.

No gloved hand was placed in the wound, which was palpated with gauze over the gloved finger.

July 22: Removed the remnant of the suture, and the wound had healed by first intention. His temperature had always been normal.

July 30: Radiographic examination, anteroposterior view, with the arm supported on aëroplane splint, revealed fragments in alignment, with liberal callus deposit. The head of the four-inch spike projected four-eighths of an inch above the greater tuberosity.

August 18: The patient left the hospital for home.

September 6: Removed the aëroplane splint and all dressings; followed by full tub bath.

September 8: The patient was instructed in calisthenics for the development of the shoulder muscles and also for the development of free-arm movements in the shoulder-joint. In fractures near joints or involving joints I do not institute early active motion in order to avoid exuberant callus formation as functional irritation encourages osteogenesis.

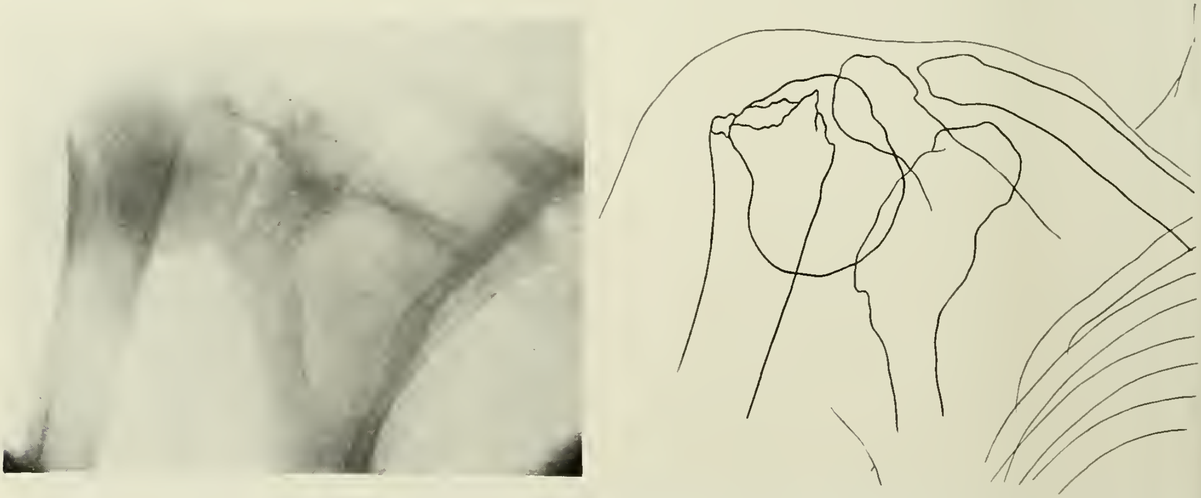
September 13: All upper snags were extracted under gas by Dentist Nilsson.

September 20: The patient had the infected snags extracted in the lower jaw.

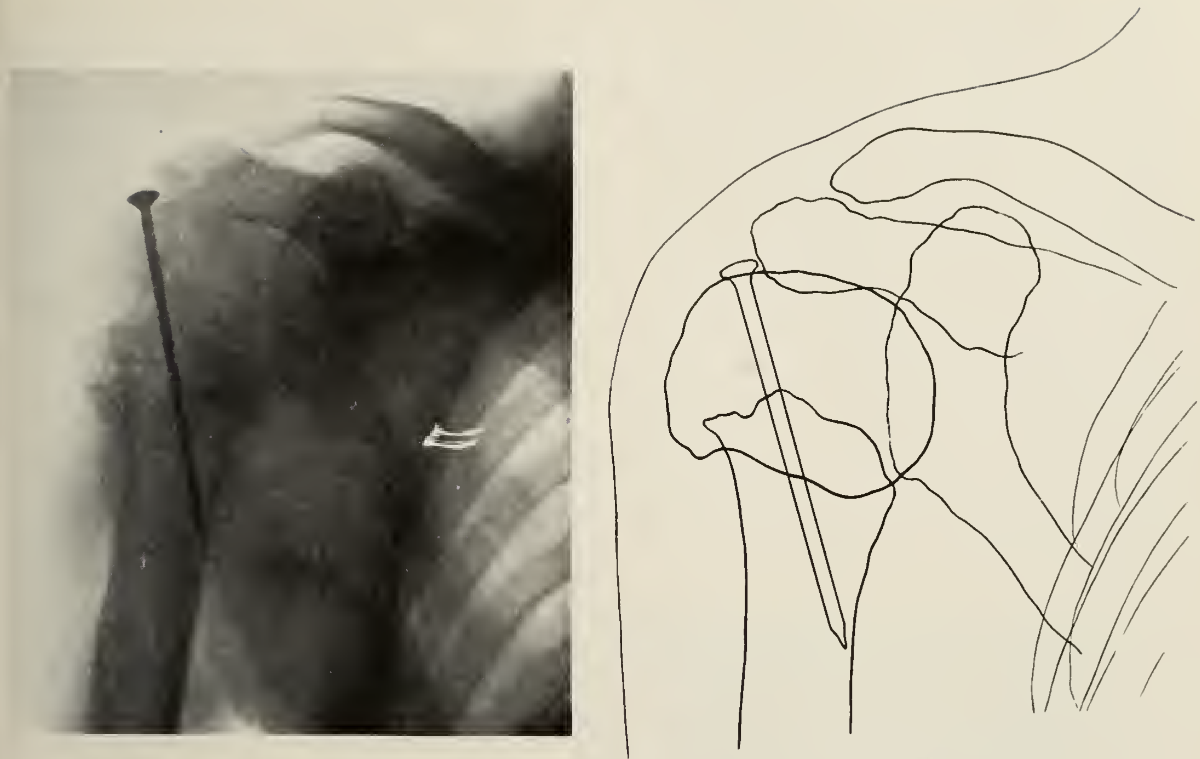
There will be, approximately, 25 per cent disability six months from the date of the injury. There will remain 12.5 per cent permanent disability one year from date of injury.

October 21: Radiographic examination, one plate, was made for the purpose of definitely localizing the head of the spike. The *x*-ray also revealed that the sharp end of the spike had gone, by osteoporosis, through the cortex of the bone.

October 25: Under ether, assisted by Interne Salt, an inch and one-half incision was made directly down to and over the head of the spike, which was then extracted without difficulty. The deep fascia was united with continuous ordinary catgut.. The skin edges were united with five silkworm gut sutures. Dry gauze dressing was applied and held in place with four adhesive



Case I, Fig. 1.—Reveals an oblique and impacted fracture with distal fragment in adduction and with proximal fragment in abduction of surgical neck of humerus—in other words, the shaft of the humerus was impacted at an angle into the head of the humerus. The outer sharp edge of distal fragment projects through the soft tissues and almost through the skin.



Case I, Fig. 2.—With arm supported on aeroplane splint, reveals fragment in alignment and liberal callus deposit. The head of the four-inch spike projects four-eighths of an inch above the greater tuberosity.

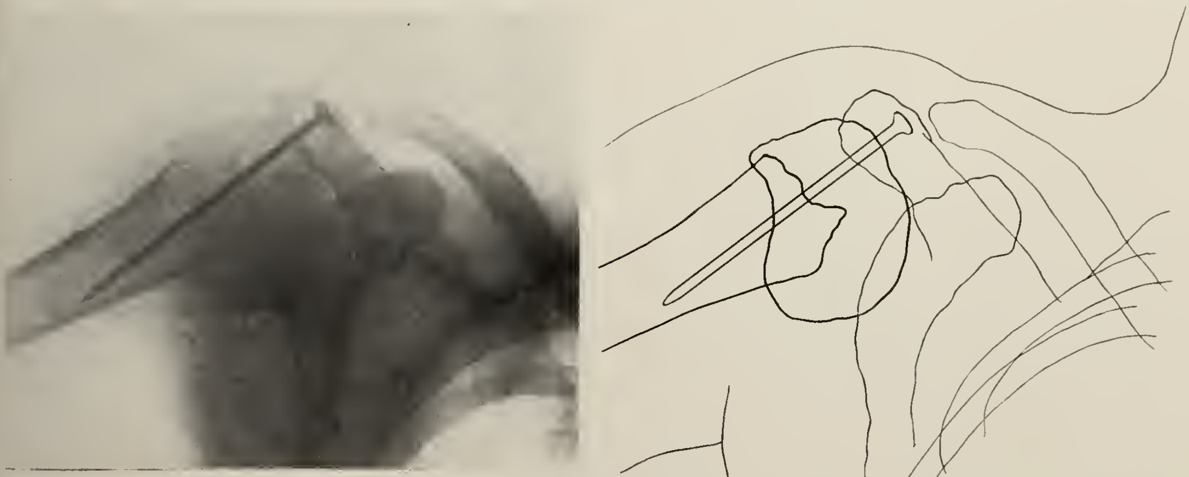
straps. He left the hospital for home in the afternoon.

November 11: The patient was instructed in daily calisthenics for developing different groups of muscles about the left shoulder.

SLIDING INLAY BONE GRAFT FOR NON-UNION OF TIBIA

Case 2.—Section laborer M., aged 52, was injured at Lake City, S. D., January 17, 1920, while cleaning snow from rails, with his back turned toward an engine. The snow-plow rolled his right leg on the rail, and he was dragged about one hundred and fifty feet.

January 25, 1920: The patient entered St. Mary's Hospital. The physician at Roslyn, S. D., had put the right leg in a fracture-box, extending from the ankle to the pelvis. The entire right leg, from the ankle-joint to half way up thigh, was extensively contused and covered with inflammatory blisters, practically making a raw surface by the cysts of serum between the superficial and deep skin, particularly in the popliteal space. The ligaments of the knee were somewhat lacerated. There was a fracture of the tibia, some distance below knee, with extensive hematoma at the point of



Case I, Fig. 3.—This radiograph definitely localizes the head of the spike. The x-ray also reveals the sharp end, corroded, of spike has gone, by osteoporosis, through the cortex of the bone.

fracture. There were enormous swelling and marked ecchymosis between the knee and the ankle-joint.

January 25: Radiographic examination, without removing the fracture-box, revealed a fracture, four inches from the upper articular surface with displacement of the lower fragment outwards and backwards, of the right tibia. No fracture of fibula.

January 28: Under ether, assisted by Interne Cochran, the large inflammatory blisters were opened, the serum allowed to escape, and the raw surfaces cleansed with normal salt solution. The fracture was reduced. Depuy's leg splint, well padded with sterile cotton and gauze, was applied. He was given hypodermics of morph. sulph., gr. ¼, as necessary for pain.

February 9: He was taken to the operating-room, and a complete change of dressing made. The three points were in fairly good alignment. There was still a large unabsorbed hematoma at the point of the fracture.

March 3: The right large toe was slightly out. Moist dressing was applied for one day, in order to macerate the dead skin and scabs, the result of inflammatory blisters.

March 3: Radiographic examination revealed the fracture slightly displaced outwards and backwards.

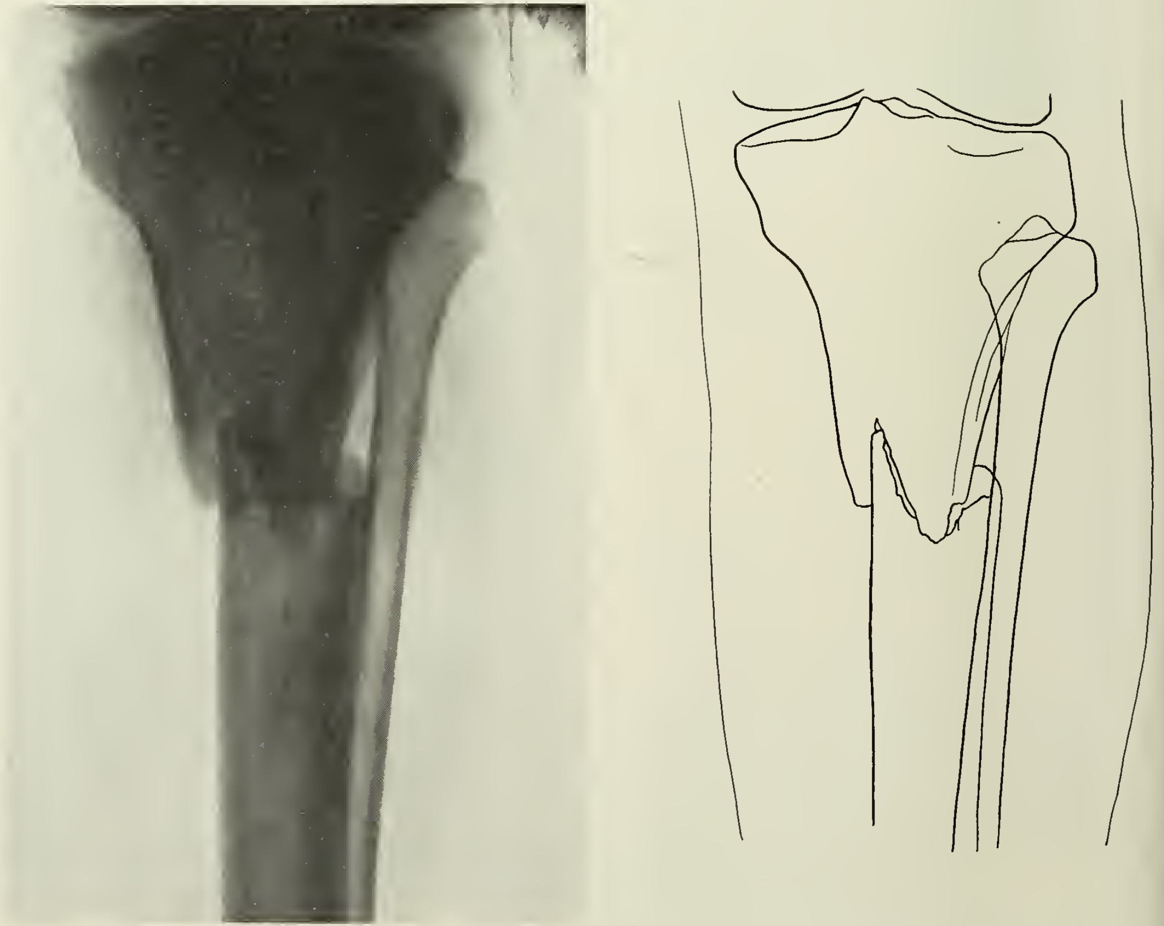
March 4: All softened scabs and dead skin were removed with gauze. There was an area of necrotic skin over the fracture, the size of a silver half dollar, which was removed. There were three other areas of granulations, the result of the extensive crushing injury.

March 4: The raw surfaces were touched up with stick nitrate of silver and then moist alcohol pads applied. A loose-fitting circular plaster-of-Paris cast was applied, extending from the toes to one-half way up the thigh, with the foot inverted and at right angles to the leg.

The patient will be given crutches and then get about the hospital.

June 24, 1920: He re-entered St. Mary's Hospital. Radiographic examination, two views, revealed the formation of callus on the posterior part of the tibia.

May 18, 1921: He re-entered St. Mary's Hospital. Radiographic examination, different views, was made of the right tibia, which revealed a fracture through the recent callus. This callus had developed from the periosteum from the posterior surface of the tibia.



Case II, Fig. 4.—Anteroposterior view, reveals a fracture, with displacement of the lower fragment outwards and backwards ,of the right tibia.

May 20: Lime water, tablespoonful in glass of water, four times daily, was given.

May 20: Wassermann test, negative.

May 23: He left the hospital, with instructions to report in one month.

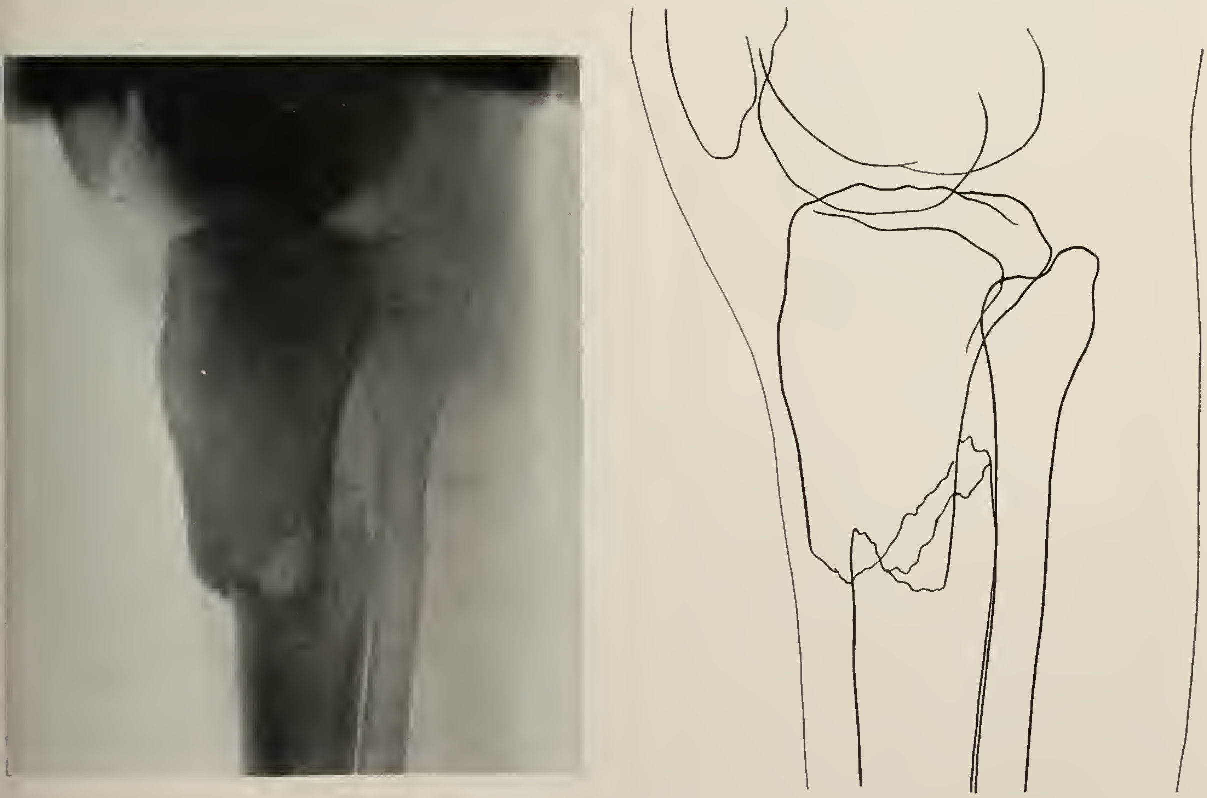
November 10: Patient re-entered St. Mary's Hospital. He had marked varicose veins about the right leg, one large vein extending across the front of the tibia, one inch below fracture.

The muscles of the right calf were firm and hard, showing good muscular development, but the patient complained of pain through the heavy calf muscles. On examination there was detected distinct to-and-fro mobility.

November 10: Radiographic examination, two views, of the right leg, revealed a large space between the ununited fragments, and that both distal and proximal fragments were more eburnated than previously. It also revealed a fracture of the callus, which had developed from the periosteum posterior to the fracture.

November 12: Heart and lungs, normal. Blood pressure: systolic, 168; diastolic, 84. Pulse pressure, 84. Teeth, eight in lower jaw; two in upper jaw; pyorrhea.

November 15: 9:00 A. M. I operated, assisted by House Surgeon MacBeath, under gas given by Miss Loehrke. A skin incision was mapped out, starting on the outside of the ligamentum patellæ, just below the patella, extending semi-circularly inwards, then downwards along the inner border of the tibia, close to the ankle-joint, and finally extending semicircularly outwards to the outer border of the tibia, mapping out a flap, ten and one-half inches long, so as not to have the scar over the graft. The incision was deepened, and the flap was laid backwards and was completely dissected from the anterior surface of the tibia. During the process of dissection two non-inflammatory areas were encountered, and liberated a small amount of pus, probably sterile. A stab-wound skin incision was made directly where the pus was encountered, in order later to have an accurate landmark for a drain. This was evidently a degenerative process of an old varicose sacculation. A large number of veins and some arteries were severed on account of extensive varicosity and were immediately caught with hemostats, so that very little blood was lost. Particular effort had to be made to remove the soft tissues as close to the knee-joint as possible. Dense scar tissue was chiseled and curetted from both fragment extremities. The periosteum was incised with scalpel the width of the twin saws, seven-sixteenths inch. A gutter, three inches long, was cut in the upper fragment with twin saws and then severed crosswise with a small circular saw. On account of marked eburnation, a chisel and mallet had to be used for lifting the fragment out of the gutter. Next a six-inch sliding inlay graft was removed from the lower fragment with twin saws and then severed crosswise with a small circular saw. Difficulty was likewise encountered in lifting the fragment on account of the eburnated condition. Again dense scar tissue and eburnated bone were removed from both fractured extremities, in order to sink the sliding graft flush with the host surfaces. Eight drill holes were made, two on each side of upper fragment and two on each side of lower



Case II, Fig. 5.—Lateral view.

fragment. Twenty-day chromic catgut on a large curved needle was drawn through the drill holes. Then the sutures were lifted and the graft inserted. The sliding graft was inserted reversed, that is, the lower extremity of graft was inserted into the upper fragment. The four ligatures, double strands, were tied over the graft. The fragment removed from the upper gutter, but not the eburnated portion, was cut with rongeurs into small pieces and placed about the graft between the fragments where dense scar tissue was removed. The skin flap was sutured in position with ten-day chromic catgut. Two gauze drains were inserted in the lower half of the wound, and one gauze drain through the stab-wound which was made during operation for the questionable pus. Bulky dry gauze dressing was applied and held in place with two leg rollers.

November 18: There had been profuse drainage, and the dressings had been changed daily.

November 27: The dressings had been changed every second day. The temperature for the past week had not been above 99°. The wound was healing by first intention, and the chances were for the bone graft to develop into firm osseous union.

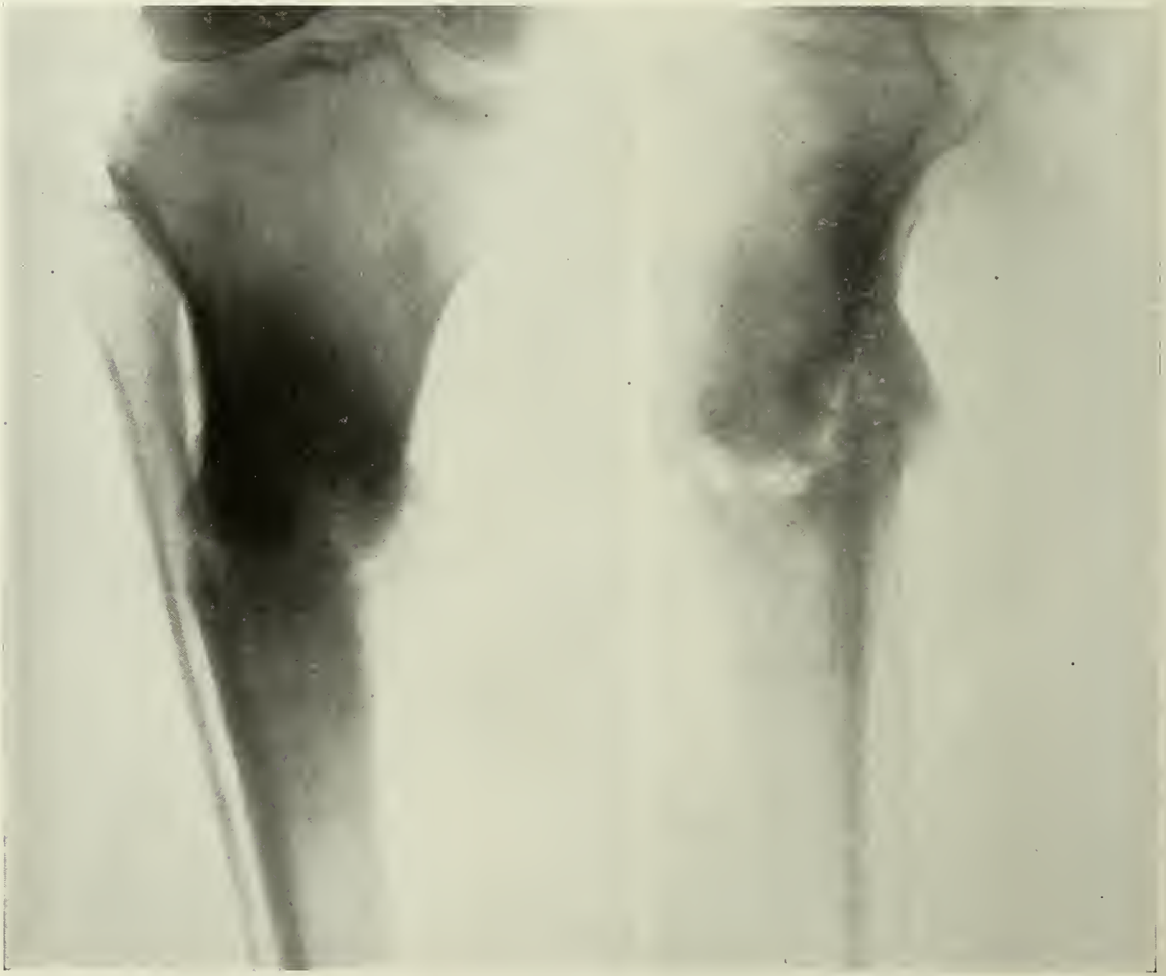
The *x*-ray pictures which were taken subsequent to the inlay bone graft will demonstrate the admirable result obtained.

DEPRESSED FRACTURE OF CRANIUM AND CRUSHED ARM

CASE 3.—Student McK., aged sixteen and one-half years, was injured July 1, 1920, 11:20 P. M. He was taken to St. Mary's Hospital, arriving at 1:30 A. M.

He intended to catch a ride and grabbed a grab-iron, but steam from engine had made it wet and slippery. As his hands slipped off the grab-iron he was thrown between the cars.

The patient was blanched as though he had lost a great deal of blood. There was a large semicircular scalp wound, the semicircle measuring eight inches, and then there was a wound two and one-half inches extending into the flap, with the base attached towards the left ear and occipital bone, over the left parietal region. There was a depressed fracture, size 3 by 1 inches, with about four or five large pieces of bone,



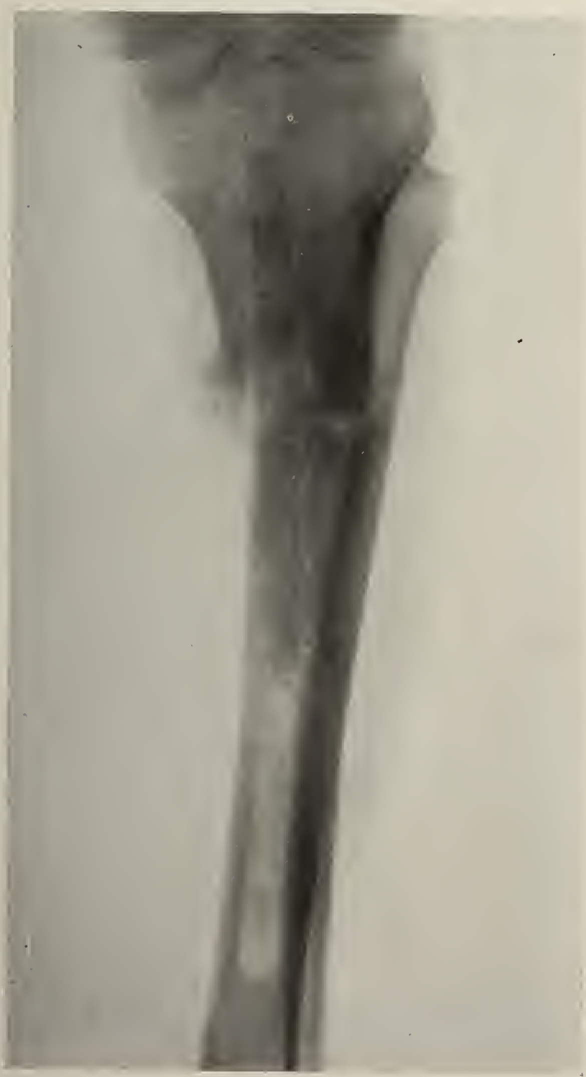
Case II, Fig. 6.—Radiograph, two views of right leg just previous to operation, reveals a large space between the ununited fragments and that both the distal and proximal fragments are markedly eburnated. It also reveals a fracture of the callus which had developed from the periosteum posterior to the fracture.

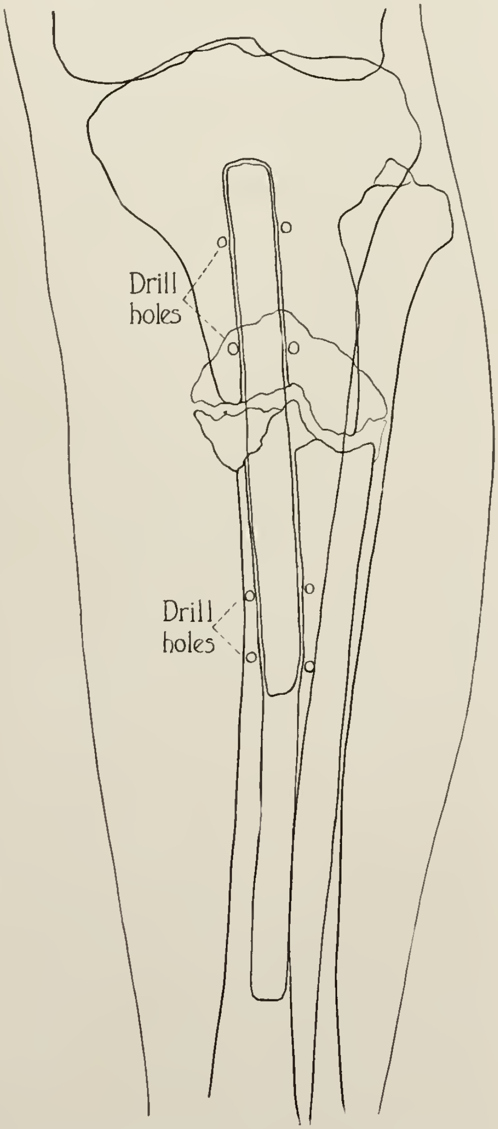
extending from the side of the head upwards and forwards. The pericranium about the edges of the depressed fracture had been crushed away, and the white cranial bones showed distinctly. The left arm had on a tourniquet close to the shoulder-joint and had been practically crushed off through the middle third, with the forearm and hand crushed to a pulp.

Blood pressure: systolic, 122; diastolic 80. Pulse pressure, 42.

The patient had been given morph. sulph., gr. ¼, on entering the hospital and was given camphorated oil 1 c.c. at 2:30 A. M. It was decided, first, to do all that was necessary, in a surgical way, to the depressed fracture, irrespective of the condition of the patient; second, to remove the crushed left arm and perform a secondary amputation later.

Under ether anesthesia, assisted by Interne Kinsman, the hair was cut short on the scalp. The scalp wounds were thoroughly cleansed with gauze wrung out of a bichloride solution, 1-3,000. The depressed fracture was elevated, one piece at a time, and removed. That part of the depressed fracture towards the ear could not be elevated on account of the internal table being much larger than the external; therefore, the external table was removed, to a certain extent, with rongeurs, and then the depressed fragments were easily elevated and removed. There was quite free hemorrhage from the lower part of the cranial fracture, which finally ceased. The dura mater was extensively bruised and lacerated, but at no place was there observed a distinct cleavage of the meninges to the brain tissue. The scalp wound edges were refreshened with scissors at four places, and the scalp was held in place with ten silkworm gut sutures, leaving the rest open





Case II, Fig. 7.—Radiograph with tracings, anteroposterior view one month after operation, reveals sliding bone graft 6 inches long and 7-16 of an inch wide, which was retained in position by four double strand, twenty-day chromic catgut sutures carried through eight drill holes. See text for descriptive technic.

for thorough drainage, particularly so where the depressed fragments had been removed. No drainage was inserted. Bulky dry gauze dressing was applied and held in place by a head bandage.

The crushed arm, which was only held to the upper part of the arm by skin and a few tendons, was removed high up, with large scissors. The tourniquet was removed, but no hemorrhage ensued. Three nerves, two large and one small, were easily observed, pulled out four to six inches and severed high up with scissors. Bulky dry gauze dressing was applied over the stump of the crushed-off arm and held by several turns about the neck. Re-amputation will be done later if the patient survives.

After the patient was taken to the room he was given by Murphy's method of instillation per rectum normal salt solution with mixture of strong coffee. Camphorated oil was given as necessary; also morph. sulph. as necessary for combating shock.

July 2: 9:30 A. M. Blood pressure: systolic, 60; diastolic, 40. Pulse pressure, 20. The blood pressure taken every hour today. Camphorated oil 1 c.c., was given at once and repeated in an hour. Morph. sulph., gr. ¼, was given. Normal salt solution was per rectum by the drop method.

July 2: 1:00 P. M. Camphorated oil 1 c.c. was repeated at 4:00 P. M.

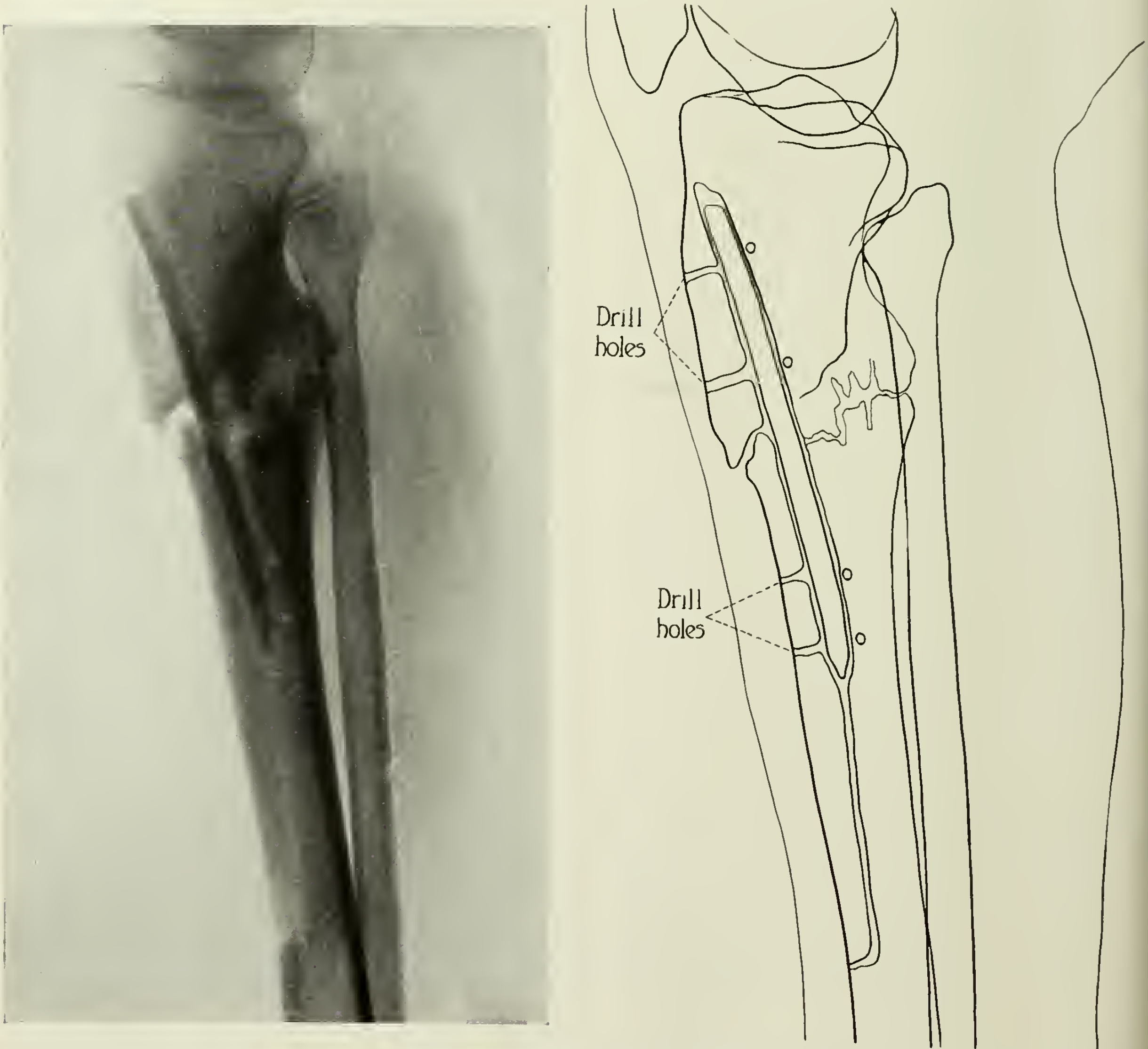
July 2: 8:00 P. M. Three hypodermics of camphorated oil were ordered for the night.

The patient was in such extreme and desperate shock all day with pulse above 160 and could not be counted, that it was questionable whether he would survive.

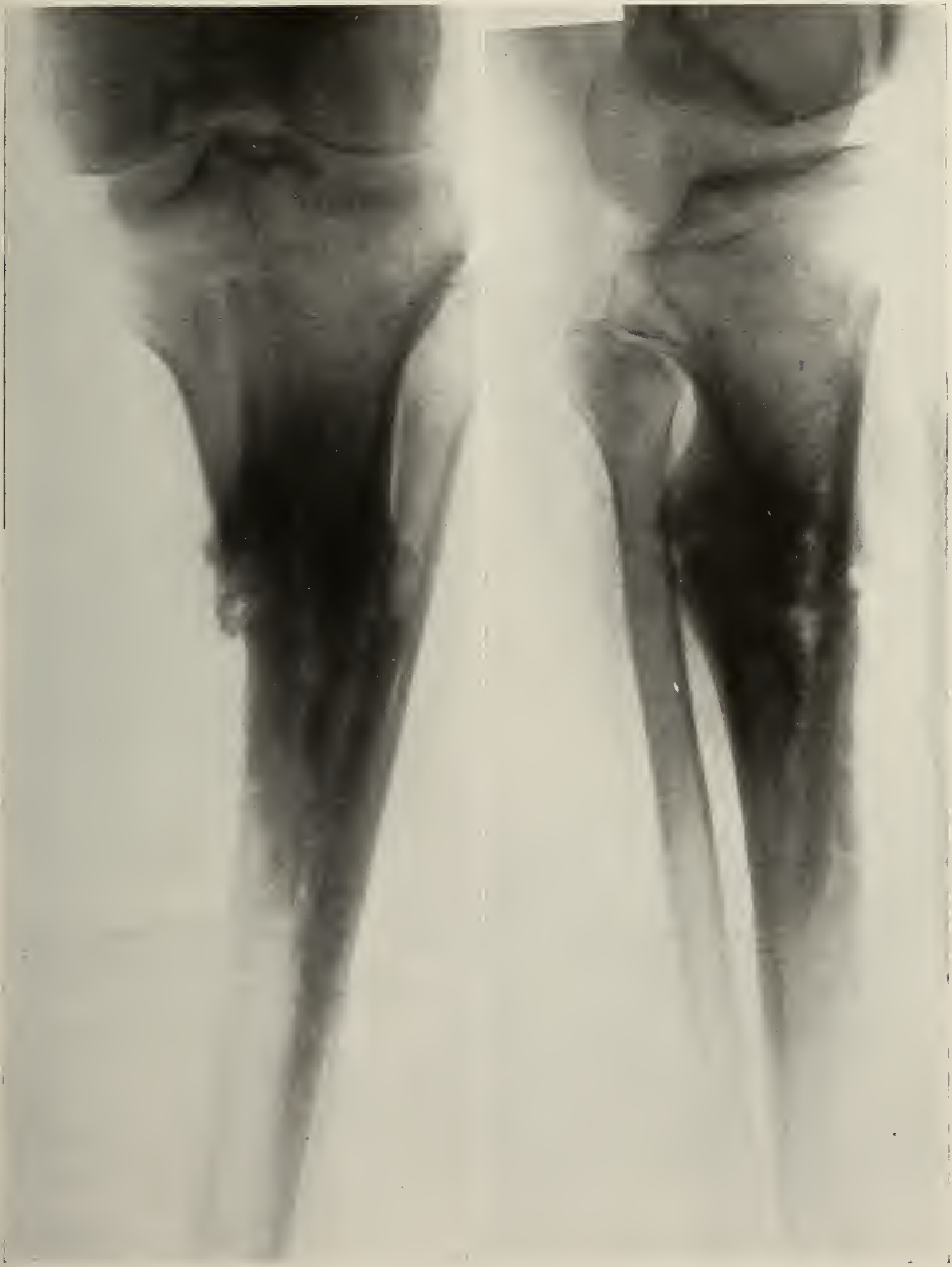
July 3: 9:00 A. M. Camphorated oil, 1 c.c., was given every four hours. Morph. sulph., gr. ⅙, was given every five hours. The patient did not feel nauseated, and took a glassful of water every half hour.

July 3: P. M. Pulse very good.

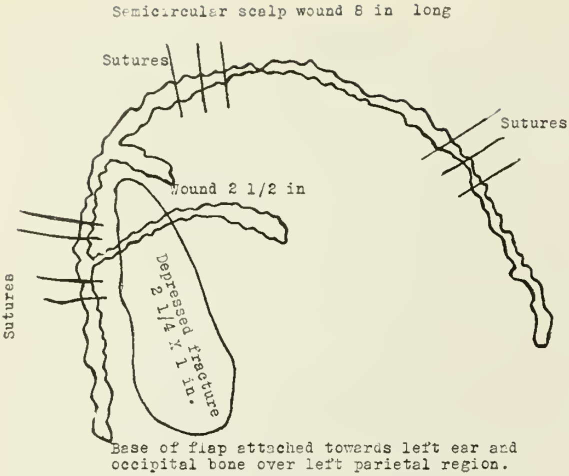
July 4: A. M. Patient improving, and was given



Case II, Fig. 8.—Lateral view one month after operation. Radiograph plainly reveals crack through the callus, which had developed from the periosteum on the posterior surface of the tibia.



Case II, Fig. 9.—Anteroposterior and lateral views taken four months after the operation reveal marked callus deposit and strong osseous union. The graft is being replaced by new bone tissue. Patient has been getting about with aid of crutches for the past two and a half months, and functional irritation has strongly revealed itself in marked osteogenesis.


Semicircular scalp wound 8 in long
Sutures
Sutures
Wound 2 1/2 in
Depressed fracture 2 1/4 x 1 in.
Sutures
Base of flap attached towards left ear and occipital bone over left parietal region.

Case II, Fig. 10.—This sketch of the scalp and cranium was made the morning following the accident.

elixir of iron and quinine with strychnine phosphate. Calomel, gr. ¼, was given every half hour for six doses, followed by Noble's enema in the afternoon.

July 5: 9:00 A. M. He was given morph. sulph., gr. ⅙, and forty-five minutes later a complete change of the dressing of scalp wound was made.

July 6: Felt very comfortable and was hungry.

July 7: Given morph. sulph., gr. ⅙; one hour later a complete change of dressing was made on the left arm. Moist bichloride gauze was applied first, and then bulky dry gauze. The wound looked clean. The head was not dressed. A Hinkle was given every night.

July 11: Removed all sutures from the scalp. Wound was healing without pus. Pulsation of the brain was distinctly observed.

July 13: 12:45 P. M. Gave morph. sulph., gr. ⅙, and forty-five minutes later a complete change of dressing of the left arm was made.

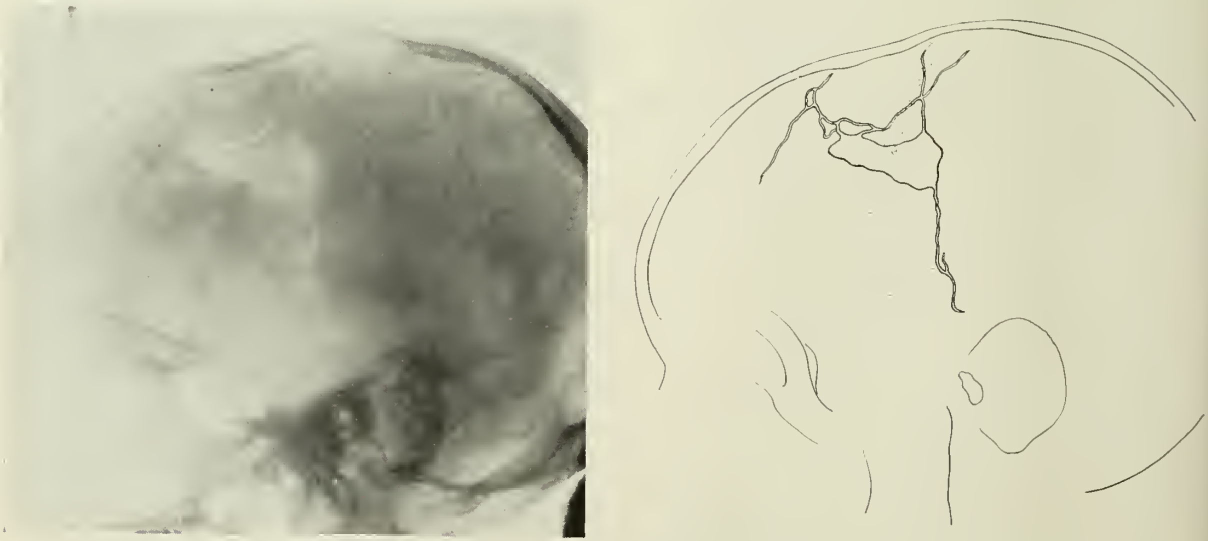
July 27: Removed the head dressing, and ordered a shampoo of the scalp. The wound was all healed.

August 9: Radiographic examination of the cranium revealed an area of bone removed, size 2 by ¾ inches (it was in reality 2¼ by 1 inch) from the left parietal and frontal. The longest area crossed the coronal suture. There were two fissures, from the posterior limb of the depressed fracture; one extended directly downwards towards the temporal bone, and the other extended directly upwards, crossing the coronal suture into the frontal bone. There were two fissures from the anterior limb of the depressed fracture; one extended downwards and the other extended upwards. There were three small pieces of bone on the upper border of the cranial opening.

Radiographic examination of the left arm revealed almost a square fracture at the middle of the humerus, covered with 1.5 inch of soft tissues; also showed a fairly large piece of bone at the end of the main fracture, held in place by its periosteum. Also showed, in the stump of the soft tissue, two unimportant small round pieces of bone and extensive periosteum stripped from bone fragments.

August 10: Dressed left stump. There was an area of healthy granulations, 2½ by 2 inches.

August 12: 8:00 A. M. Under ether, assisted by Interne Salt, Thiersch's method of skin grafting was performed. The granulations were completely refreshened with scissors. The skin grafts were removed with a scalpel from the inside of the left thigh. The grafts were held on by narrow strips of rubber tissue. Dry gauze dressing, in a cuff fashion, was applied over the arm with a thin layer of gauze over the cuff part of the gauze dressing, thus not excluding air.



Case III, Fig. 11.—Reveals depressed fracture removed from left parietal and frontal bones. The longest area crosses the coronal suture. There are two fissures from the posterior limb of the depressed fracture. One extends directly downwards towards the temporal bone, and the other extends directly upwards, crossing the coronal suture into the frontal bone. There are two fissures from the anterior limb of the depressed fracture; one extends downwards and the other extends upwards. There are three small pieces of bone on the upper border of the cranial opening.

August 19: A complete change of dressing of the left stump was made, and the wound cleansed with normal salt solution. Grafts had all taken. Gauze dressing was applied so as not to come in contact with grafts.

September 1: Daily zinc oxide on gauze was applied to the wound on the left thigh, and the patient sat up in a chair. He had been kept in a recumbent position in bed on account of cranial and intracranial trauma.

September 11: The wound on stump had all healed. Left dressing off. The patient was given a full tub bath.

September 12: Pulsation of the brain, where depressed fracture was removed, was plainly observed. He had no headache today; in fact, he never had had headache or paralysis due to cerebral edema. His mentality was excellent; heard a watch tick at the normal distance. Vision was normal both eyes. The right humerus measured thirteen inches, and the left amputated humerus measured seven inches; therefore, six inches had been removed. There was absolutely no tenderness over the stump, and deep palpation caused no discomfort. He left hospital for home.

OPEN FRACTURE OF BASE OF CRANIUM

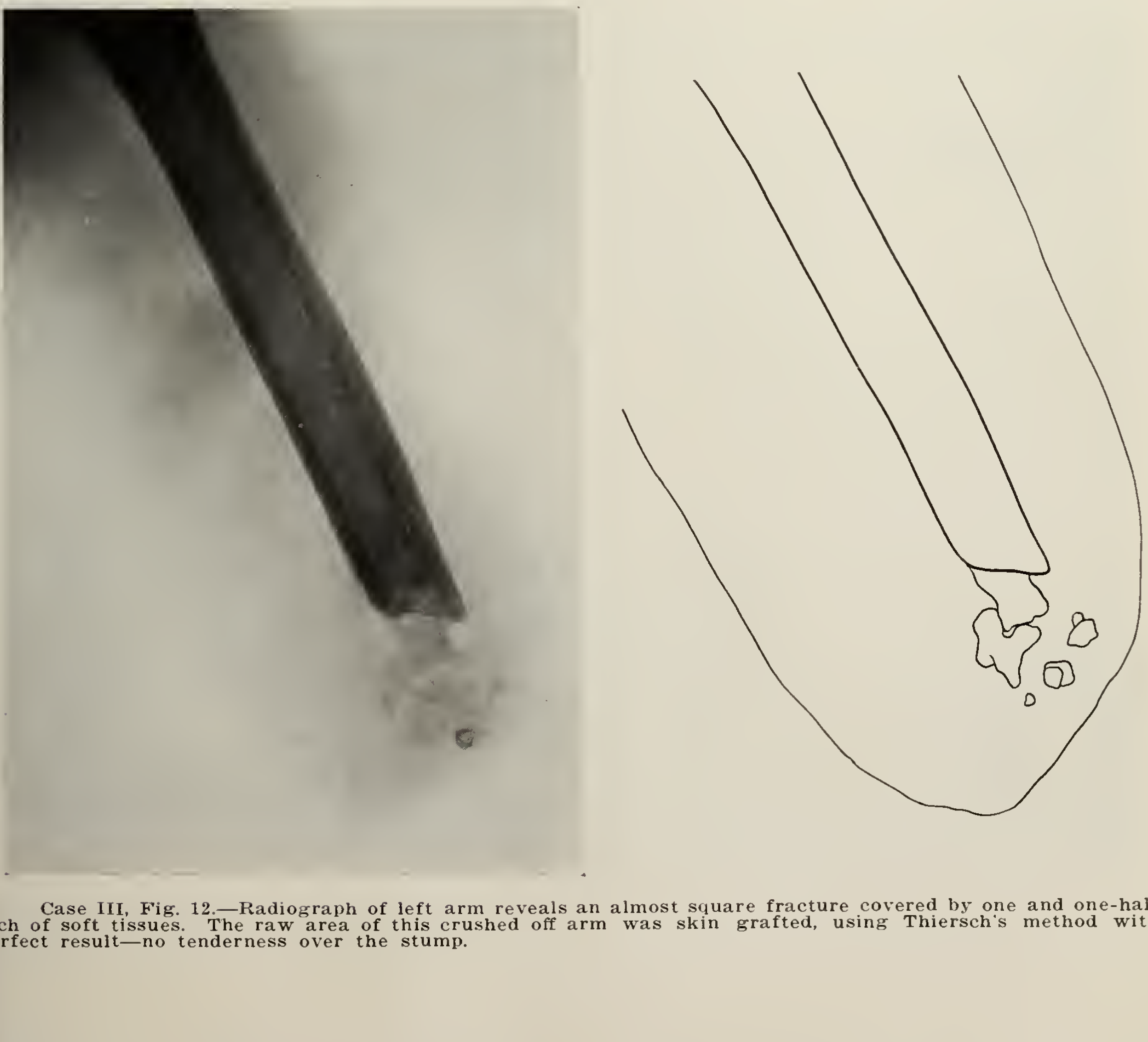
Case 4.—Carpenter P., aged 38, was injured on May 7, 1920, at 10:30 a. m., in jacking up a box-car, when the handle of the jack hit him on the back of head. He was taken in ambulance to St. Mary's Hospital.

May 7, 1920: There was a deep, slanting (from above down) scalp wound, two inches long, exposing the cranium, just over the occipital protuberance, slightly to the right side. Short hair was found at the bottom of the wound close to denuded cranium. On separating the wound and exposing the cranium there was an irregular red line running towards the foramen magnum, plainly revealing a fracture.

There was no ecchymosis over the mastoid processes or hemorrhage from the ears. He complained of soreness and stiffness about the neck, more on the left side, due to muscular strain. There was an abrasion, 2 by 1 inches, surrounded by a bruise, below the right lower jaw.

Treatment: Novocaine, ½ per cent solution, 120 m., was injected about the wound. The scalp surrounding the wound was cleansed with gasoline and the wound itself was thoroughly scrubbed with a saline solution, removing all the questionable dirt and hair. Three deep silkworm gut sutures were inserted, approximating the scalp wound edges. Bulky dry gauze dressing was applied and held in place by a head bandage. Two ice caps were continuously applied to the head.

The patient later stated that he did not know what



Case III, Fig. 12.—Radiograph of left arm reveals an almost square fracture covered by one and one-half inch of soft tissues. The raw area of this crushed off arm was skin grafted, using Thiersch's method with perfect result—no tenderness over the stump.

happened until night (8 hours later). At the time I sutured his scalp wound he did not respond to questions, and I thought then it was because of his disposition, but a few days after the injury he readily answered questions, so he must have been semiconscious at the time I sutured his wound.

This unconsciousness was evidently due to cerebral concussion, and his headache was likely due to cerebral edema.

The patient, for the first ten days, complained that he had severe headache lasting from three to four hours, and then he would be free during the same length of interval.

May 20: Radiographic examination of the cranium, with the plate close to the occipital bone, revealed a fracture, slightly to the right, extending the lower two-thirds of the distance between the foramen magnum and the superior angle. There were two parallel fissures for half the distance of the fracture, measuring from the foramen magnum, apparently making a loose piece of bone of the lower half of the fracture.

All cases of severe intracranial injury should be kept in the recumbent position in bed with head on a pillow for at least two months, thus avoiding a grave complication, namely, traumatic neurosis. This man was in a condition to be up and about in two weeks, but he was kept in bed for two months, and made a perfect recovery.

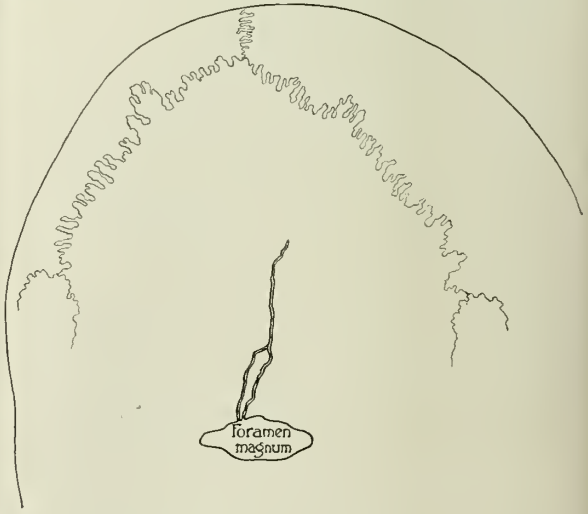
Cushing says: "Aside from operation in the acute stage, too great emphasis cannot be laid on absolute rest and enforced quiet for a long period after the injury. These patients, like others, are apt to be hurried out of the hospital; and an attempt at too early a date to resume their former activities often results in a disastrous nervous breakdown."

FRACTURE OF THE PELVIS WITH RUPTURE OF THE BLADDER

CASE 5.—Car repairer J., aged 55, was injured on May 25, 1920, at 8:15 A. M., by having a heavy timber fall on his back while he was lying on the ground. He was taken to St. Mary's Hospital. He stated that he had voided urine at 6:15 A. M. He had considerable pain through pelvis on the least movement or on flexing the legs. While lying on his back he complained of severe pain over and just above the symphysis pubis, which, on deep palpation, made the pain over that region quite unbearable. On a slight to-and-from movement of the pelvic brims crepitation was detected. Interne Salt catheterized the bladder and obtained six ounces of dark-reddish bloody urine, which, under the microscope, revealed numerous red blood cells.

2:30 P. M. The patient's condition had been good, but later a blanched facial expression developed with a small running pulse, giving evidences of shock. Blood pressure: systolic, 82; diastolic, 70. Pulse pressure, 12. While this condition was unfavorable to operation it was simply a matter of getting into and out of the abdomen as quickly as possible, for without efficient bladder drainage the prognosis would have been fatal.

He was given regulation hypodermic morph. sulph., gr. 1/6, and atropine sulph., gr. 1/150. Under ether, assisted by Dr. S. V. Hodge and Interne Kinsman, a median incision, four inches long, was made, starting over the symphysis pubis. Immediately beneath the skin incision dark extravasation was detected over the symphysis, and on reaching the symphysis free blood and urine escaped. A finger was introduced and the

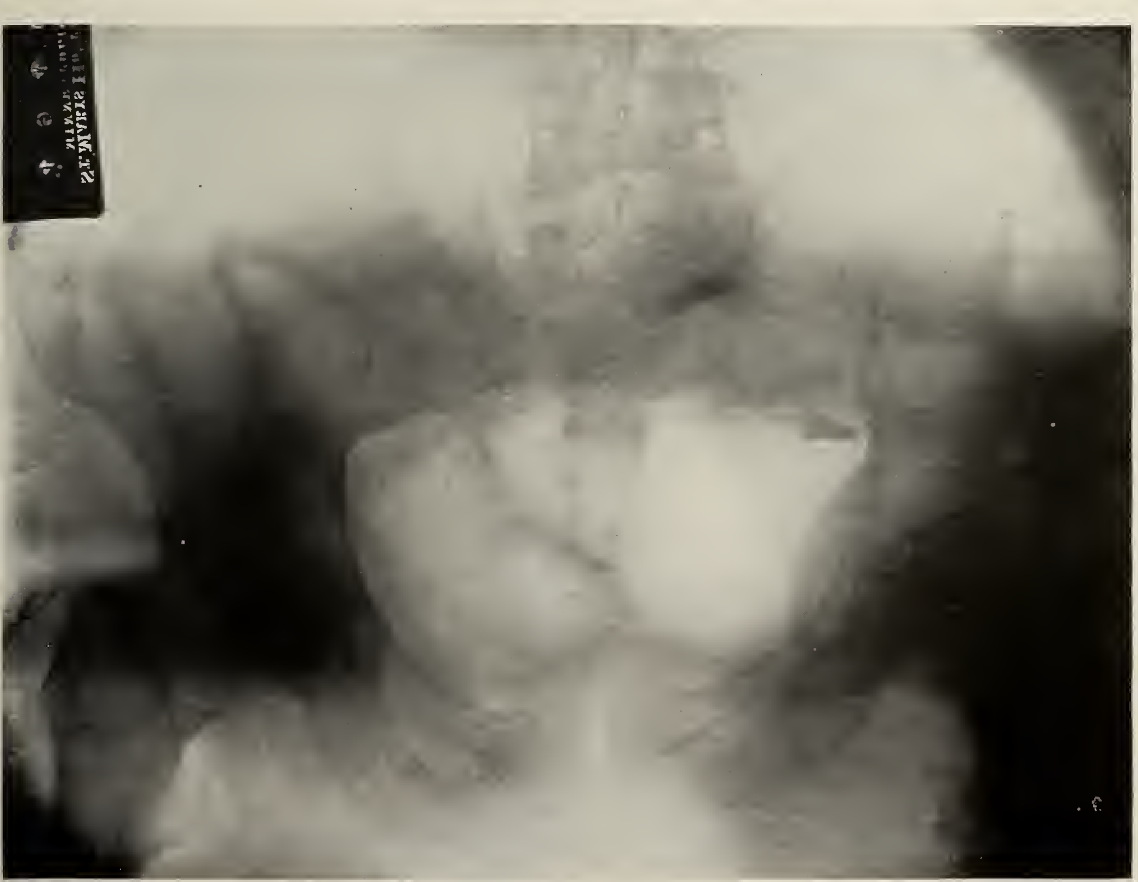


Case IV, Fig. 13.—Reveals a fracture of occipital bone extending the lower two-thirds of the distance between the foramen magnum and the superior angle. Two parallel fissures apparently make a loose piece of bone of the lower half of the fracture.

symphysis pubis palpated, which showed sharp bony edges with separation. The bladder had been entirely separated from the symphysis pubis, and the examining finger could be hooked over the symphysis and the pubic arch palpated. All structures were bloody and urine laden, and no definite opening could be found in the bladder. The peritoneum was incised, and the peritoneal cavity inspected, revealing nothing abnormal; consequently, the peritoneal incision was closed with a running suture of ordinary catgut. A metal catheter was introduced by the assistant while the operator's finger directed the to-and-from motion of the end of the catheter. The tip of the catheter had to be directed forward towards the symphysis pubis in order to allow it to slip into the ruptured opening, which was then brought into view through the abdominal wound. Liberal drainage was decided upon, the same as one is apt to use in prostatectomy. Three large rubber drains were inserted. The lumen was slit open, and gauze was put in the lumen. The first was inserted into the bladder laceration, using the metal catheter as a guide, and the other two were placed one at each side of the bladder, the left going considerably further down into the pelvis than the right. Two tension sutures of silkworm gut were inserted, including muscles, fascia, and skin. The external fascia was united with a ten-day chromic catgut blanket suture, and the same for the skin, allowing the three large drainage tubes to project at the lower end of the wound. Next, the tension sutures were tied over a pad of gauze. Bulky dry gauze dressing was applied and held in place with adhesive straps, which could be tied in the center for easy and frequent change of dressing.

The peritoneal cavity would not have required to be opened, but one would not have felt safe not knowing whether or not there had been an intraperitoneal rupture. For that reason the peritoneum was opened as a safety precaution and then closed.

7:30 P. M. Blood pressure: systolic, 106; diastolic, 68. Pulse pressure, 38. The pulse was of fair consistency, and the patient's cadaveric facial expression had given place to a vital pinkish color. He stated that he felt much better and quite comfortable as compared with his condition before the operation. The profound shock and extreme degree of prostration must have been caused by the dissection of the tissues by the urinary accumulation. It was amazing how low the condition of the patient was at the time of the operation,



Case V, Fig. 14.—Reveals a perpendicular fracture two inches in front of the posterior superior spinous process of the right ilium with a displacement upwards of one-half inch of the outer fragment. The line of fracture extends through the entire posterior border of the ilium, but the lower one-half of the line of fracture involves only one-half of the thickness of the posterior border of the ilium. There are two or three small loose fragments in the great sacrosciatic notch just below the sacro-iliac joint. Also reveals that the right os pubis is one-third inch higher than the left, and it shows a small fragment in the pubic arch, broken loose from the body of the left os pubis.

as compared with the favorable prognosis four hours later. One was at the point of hesitating to go ahead and operate, but it was simply a matter of doing it then or never.

May 26: Urotropin, gr. 7½, was ordered four times a day. He had voided urine on four occasions, totalling sixteen ounces. Blood pressure: systolic, 108; diastolic, 78. Pulse pressure, 30.

May 27: The patient had considerable tympanites, and was given pituitrin, 1 c.c., followed thirty minutes later by a Noble's enema. The drainage tube was removed from right side.

May 28: Removed the drainage tube from the bladder. There was brownish ecchymosis, 7 by 4½ inches, surrounded by an extensive bruise, over the posterior part of the right side of the pelvis.

May 29: Condition very encouraging. Suprapubic dressings were very little soiled, and the patient voided urine in the natural way. Constipation had been a troublesome feature.

May 31: Removed the third and last drainage tube from the left side.

June 1: Radiographic examination, using a plate large enough to include both hip-joints, revealed a perpendicular fracture two inches in front of the posterior superior spinous process of the right ilium with a displacement upwards of one-half inch of the outer fragment. The line of fracture extended through the entire posterior border of the ilium, but the lower one-half of the line of fracture involved only one-half of the thickness of the posterior border of the ilium. There were two small loose fragments, one larger than the other, in the great sacrosciatic notch just below the sacro-iliac joint. *X*-ray also revealed that the right os pubis was one-third inch higher than the left, due to rupture of the pubic ligaments, and it also revealed a small fragment in the pubic arch, broken loose from the body of the left os pubis. Concentration *x*-ray pictures of each hip-joint did not reveal any abnormality.

June 2: Consultation was held with Dr. George G. Eitel and the patient's family physician, Dr. Gilbert Seashore. Both concurred that it was best not to attempt to reduce the somewhat displaced pelvic fragments, as the attempt might result in a condition which would not be as favorable for satisfactory recovery as the present outlook.

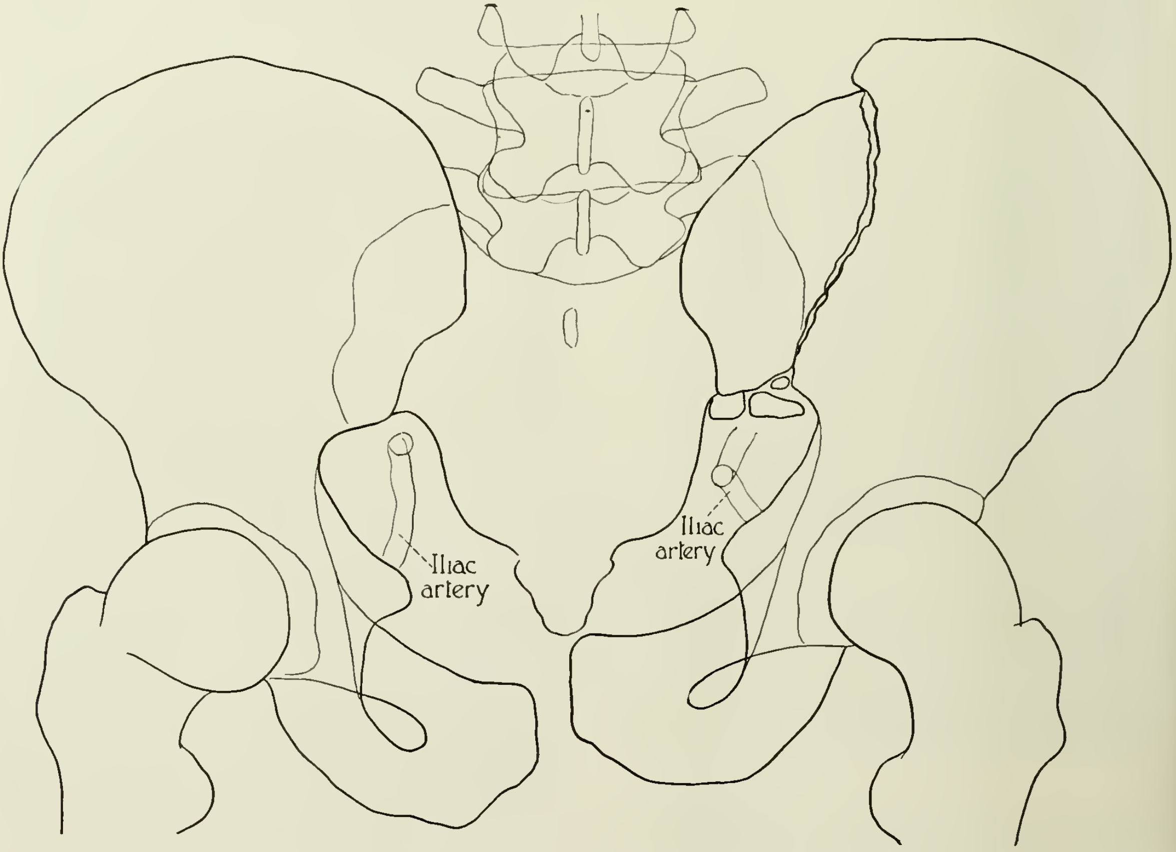
June 4: Removed two tension sutures and the remnant of the skin sutures.

June 6: Very little secretions on the dressings, and the wound had practically all healed.

June 16: The patient complained of rheumatism in the right shoulder, for which he received the usual remedies. He had all his teeth out and wore plates.

June 22: Applied stick nitrate of silver to a small area of granulations.

June 23: He still had rheumatism in right shoulder



Tracing of x-ray plate, Case 5—Fig. 14. See interpretation of the radiograph on page 361.

with slight elevation of temperature. I ordered two ounces of Pluto water at bedtime and two ounces before breakfast, and Baume Analgésique for right shoulder.

Urinalysis had been entirely negative.

June 25: The patient had been encouraged to flex the knees and to raise the pelvis.

July 6: He still had a sore right shoulder due to rheumatism. The abdominal wound had completely healed with the exception of a granulating area one-third inch in diameter in the lower end of the scar to which stick nitrate of silver had occasionally been applied. He had no difficulty in voiding urine, retaining urine six hours with comfort. The patient was ordered kept in bed fully two months, and after that to first sit up with a back rest and later to be placed in a chair before attempting to bear the weight of the body on the pelvic bones.

STRAIN OF LIGAMENTS FOLLOWED BY SYNOVITIS OF THE SACRO-ILIAC JOINT

Case 6.—Coal-heaver L., aged 44, was injured on April 19, 1920. He was putting coal in an engine and slipped and fell between the top floor and the tender as he pushed the empty bucket back.

June 1, 1920: He wore a strong non-elastic webbed belt about the pelvis. He complained of excruciating pain while walking, through the right lower part of the back. On palpation, while the patient was bending the body in different directions and at the same time twisting the body on the lower extremities, pain was definitely located in the right sacro-iliac joint—severe strain of the right sacro-iliac ligaments with inflammation of joint surfaces.

He had ten teeth in his lower jaw, and eight teeth and two infected snags in the upper jaw. Sp. gr., 1022, and negative.

Treatment: Dentist Nilsson extracted two right upper infected snags. He was ordered to return home and to rest in bed for one week, and, if the pain did not subside, he was advised to enter the hospital.

June 8: He was sent to St. Mary's Hospital. Continuous hot fomentations were applied to the posterior right side of the pelvis, and he was kept entirely off his feet and in recumbent position in bed.

Case VI. Fig. 15.—Radiograph discloses the joint surfaces of the right sacro-iliac joint wider than the left, confirming the clinical diagnosis.

June 22: Radiographic examination, using one large plate, which included the entire pelvis, disclosed the joint surfaces of the right sacro-iliac joint wider than the left, confirming the clinical diagnosis.

August 2: The pain had practically all subsided for the past week, but the patient was cautioned not to bear his weight on the legs and again cause strain of the weakened sacro-iliac ligaments. He was given a Goldthwaite belt. He made a perfect recovery.

ACUTE OSTEOMYELITIS OF TIBIA DUE TO METASTATIC ORAL SEPSIS

Case 7.—Freight conductor K., aged 48, gradually developed severe pain below the left knee from continuous jumping into cars and rubbing the leg over the door-sill. Pain was first noticed about April 20, 1920. He first consulted Dr. Gilbert B. Johnston, Abbottsford, Wis.

May 6, 1920: There was brownish swelling, 5 by 3 inches, over the upper half of the left tibia, due to periostitis, likely of an infective character.

Teeth: Five gone; one front upper tooth was gone; and the two teeth to which the bridge was attached were loose and likely abscessed. His teeth showed marked wear and were kept in an unsanitary condition.

Heart and lungs, normal. Blood pressure: systolic, 132; diastolic, 78. Pulse pressure, 54. Pulse, 78. Temperature, 98.8° at 11:00 A. M. Sp. gr., 1012 and normal. He was sent to St. Mary's Hospital, and continuous hot fomentations were applied to the left leg below the knee, a full tub bath was given every second day.

May 13: Sent to Dentist Nilsson for *x*-ray of front upper teeth. The dentist found the two loose teeth, to which the bridge was attached, abscessed. The two abscessed teeth were extracted.

May 28: The patient had felt fairly comfortable and left the hospital for home with instructions to return at once if further complications developed.

May 29: The patient telephoned from Wisconsin that he had considerable pain and was told to return.

May 30: The patient re-entered the hospital.

June 2 and 7: Radiographic examination, different views, revealed a shadow, 1¼ by ¾ inches, in the medullary canal in the upper part of the left tibia, two and one-half inches from the upper articular surface, due to osteomyelitis. The upper border of the shadow was on a level with the lower border of the tubercle of the tibia.

June 8: Under ether, assisted by Dr. Paul F. Brown, a two-inch incision was made down to the tibia, the center of incision being over the *x*-ray shadow. With Hudson's bone drill an opening was made directly into the abscess, thus liberating pus. A one and one-half inch incision was made on the outside of the tibia, the muscles retracted posteriorly; and first, with a chisel, and second, with Hudson's bone drill, a through-and-through opening in the tibia was effected, thus affording thorough drainage. Iodoform gauze drain was inserted. The skin incisions were partially closed, both above and below the projecting iodoform gauze drain.

June 12: Complete change of dressing and iodoform gauze drain re-inserted.

June 17: He was given hypodermically morph. sulph., gr. ¼, at 12:15 P. M. and a complete change of dressing at 1:00 P. M. Removed all sutures, and re-inserted iodoform gauze drain.

June 20: Complete change of dressing. Did not re-insert gauze drain.

August 1: The wound was all healed. Full tub bath and all dressing discontinued. He was ordered to develop the muscles of the leg so as to regain strength to resume his work.

August 3: The patient left the hospital for home, and will be able to resume his occupation about August 16. There was no permanent disability.

CRUSHED THIGH AND OPEN FRACTURE OF THE FEMUR

CASE 8.—Carpenter G., aged 48, was injured May 25, 1920, at 9:30 A. M., while walking across the track, close to the end of a box car, when all at once he was knocked down by the car which was struck by a switch engine, and the wheel crushed over his right leg. Fellow-workman had to move the car in order to extract the crushed leg from beneath the wheel.

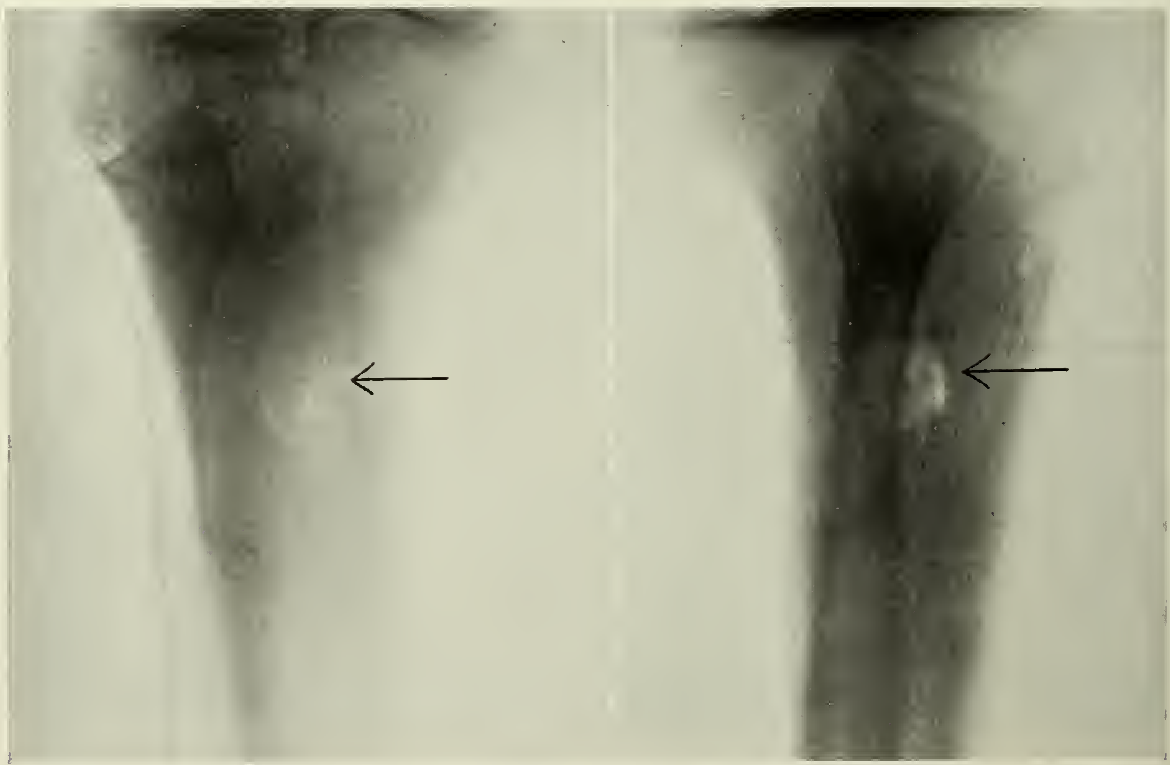
He was taken to St. Mary's Hospital. A hasty survey showed the patient extensively mangled. Blood pressure: systolic, 136; diastolic, 84. Pulse pressure, 52. He was given morph. sulph., gr. 1/4, at once.

The superficial skin had been crushed off by the car wheel, size 8 by 8 inches, from the front and internal surface of the lower one-half of the right thigh. There was a deep lacerated wound, revealing lacerated muscles, 5 by 3 inches, in the front and internal surface, middle one-third of the right thigh. There was a lacerated wound, two inches long, on the posterior surface of the thigh, connecting with the fracture of the femur and the lacerated muscles.

There was a deep scratch abrasion, 4 by 3 inches, surrounded by a bruise, on the right side of face. There was an abrasion the size of a silver dollar surrounded by a deep bruise over the top of the left shoulder. There were two small areas where the skin had been knocked off, one above and another below the left elbow. There was a deep abrasion, 6 by 5 inches, where superficial skin had been crushed away by the flange of the wheel, surrounded by an extensive muscular bruise, on the outside lower half of the left thigh.

1:00 P. M. Under ether, assisted by Dr. S. V. Hodge and Interne Kinsman, the right femur was found fractured at the junction of the upper with the middle third, and the fracture could easily be palpated with the gloved finger through the anterior wound. All thigh muscles were extensively crushed, and one could easily pass a long forceps from the wound in front to the wound in the back of the thigh. The large anterior wound on the thigh was filled with crushed muscular tissue, revealing that the quadriceps extensor muscle was extensively lacerated.

The skin of the entire thigh was cleansed with gasoline and all wounds thoroughly irrigated with normal salt solution. The skin edges and exposed muscles of the wound in front of the thigh were covered with grease from the car wheel. The lacerated, grease-covered muscles were widely removed with scissors, and the grease-covered skin edges were trimmed off. The wound on the back of the thigh was enlarged, and a second large counter-drain opening was made through the skin towards the knee. Two large rubber drainage tubes were inserted, projecting through large anterior wound and each separately through the two pos-



Case VII, Fig. 16.—Anteroposterior and lateral views reveal a shadow, 1¼ by ¾ inches, in the medullary canal in the upper part of the left tibia. Acute osteomyelitis.

terior wounds. Bulky dry gauze dressing was applied and held in place by a bandage. A hamstring splint was applied, and a Liston splint, extending from the axilla to below the foot.

The abrasion on the face was cleansed with gasoline, and the abrasion on the left thigh was cleansed with gasoline, and a roller gauze and bandage applied.

May 26: Blood pressure: systolic, 114; diastolic, 76. Pulse pressure, 38.

May 27: The patient had five teeth and eight stumps in the upper jaw, and three stumps and seven teeth in the lower jaw.

May 27: 12:15 P. M. Morph. sulph., gr. ¼, was given at 12:45 P. M. Consultation with Dr. H. A. Bouman, his family physician, was had. Complete change of dressing was made. Used three leg roller bandages, and sterile cotton. Changed the dressing on the hamstring splint, and re-applied the Liston splint.

May 28: Extraction of all snags and two last molars, one on each side on upper jaw, under gas, was done by Dentist Thomas Ryan.

May 29: Applied a Thomas extension splint.

May 31: Removed one drain and sterilized it before inserting it again. Some necrotic tissue removed. The patient had profuse night sweats, due to the crushed thigh muscles causing toxins.

June 1: Radiographic examination, two views, of the thigh, revealed a square fracture, with overlapping of one-half inch, with the distal fragment displaced inwards and backwards, and with the proximal fragment displaced outwards and forwards, and with two large rubber drains in position, at the junction of the middle with the upper third of the right femur. One *x*-ray plate of the right knee did not reveal anything abnormal.

June 9: Complete change of dressing. Removed the upper drainage tube. Sterilized the lower drainage, and reinserted it.

June 12: Complete change of dressing. Sterilized rubber drain. Irrigated through and through with bichloride solution.

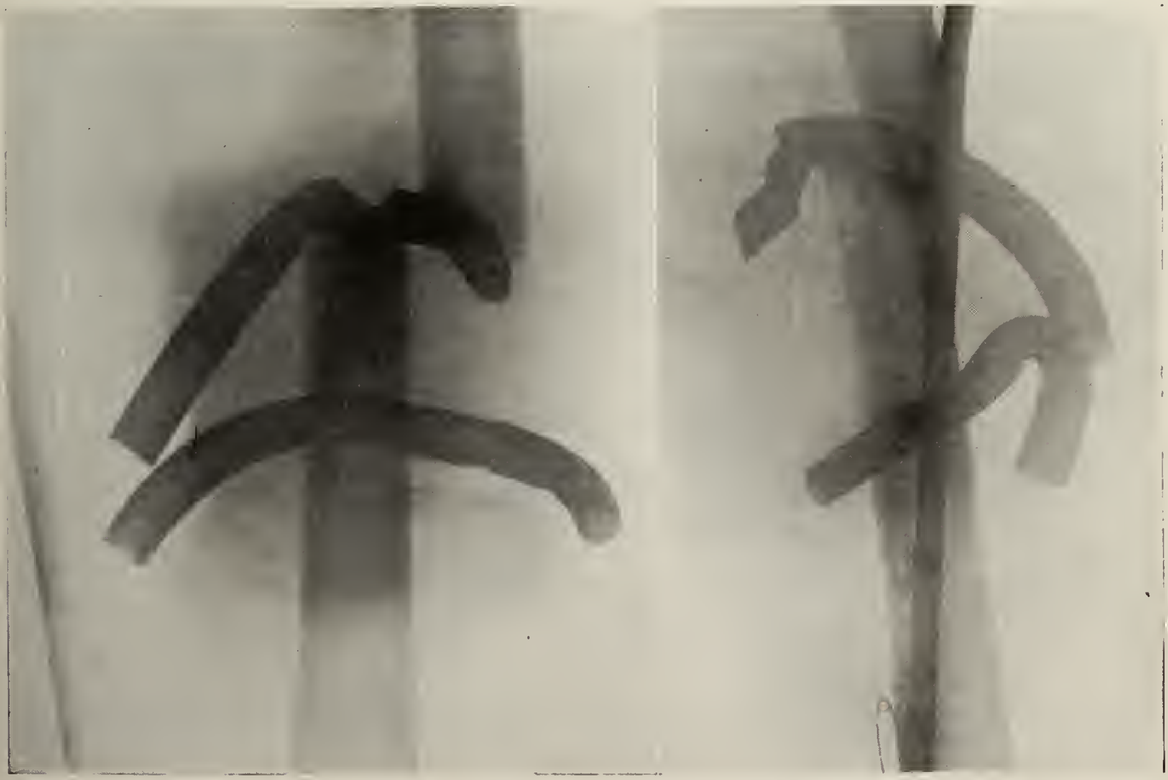
June 14: The right leg is 1¼ inches short. Twisted the extension with a hemostat.

June 15: Complete change of dressing. Left second drainage tube out. Bichloride irrigation through wound. Shortened the extension. Leg is ¾ to 1 inch short.

June 17: Radiographic examination of the right femur, two views, revealed liberal callus deposit; otherwise same as on June 1.

June 18: Strong extension had been made with the aid of a Thomas splint without entire satisfactory progress. Morph. sulph., gr. ¼, was given at 12:15 P. M.

Under ether at 1:00 P. M., the thigh, at the point of fracture of the femur, was bent to an acute angle with the leg carried towards the left until the square fragments were in apposition and then straightened, thereby forcibly stretching the thigh muscles and reducing the fracture. A large firm pad of gauze was applied over the outside of the upper fragment, using the outer limb of the Thomas splint as support, and a large firm pad of gauze was applied over the inner surface of the lower



Case VIII, Fig. 17.—Two views reveal a square fracture, with overlapping of one-half inch, with the distal fragment displaced inwards and backwards, and with the proximal fragment displaced outwards and forwards, and with two large rubber drains in position at the junction of the middle with the upper third of the right femur.

fragment, using the inner limb of the Thomas splint as support, thus retaining the fragments in alignment.

The patient was immediately taken to the *x*-ray room, and fluoroscopic examination, anteroposterior view, revealed complete reduction.

June 19: Both legs measured the same.

July 26: Radiographic examination, anteroposterior view, of the right femur revealed perfect alignment of the upper and lower fragments, and a lateral view revealed overlapping with the lower fragment displaced posteriorly. Both views revealed extensive callus formation, and strong bony union will result.

August 8: One wound on the back of the thigh was all healed. Applied stick nitrate of silver.

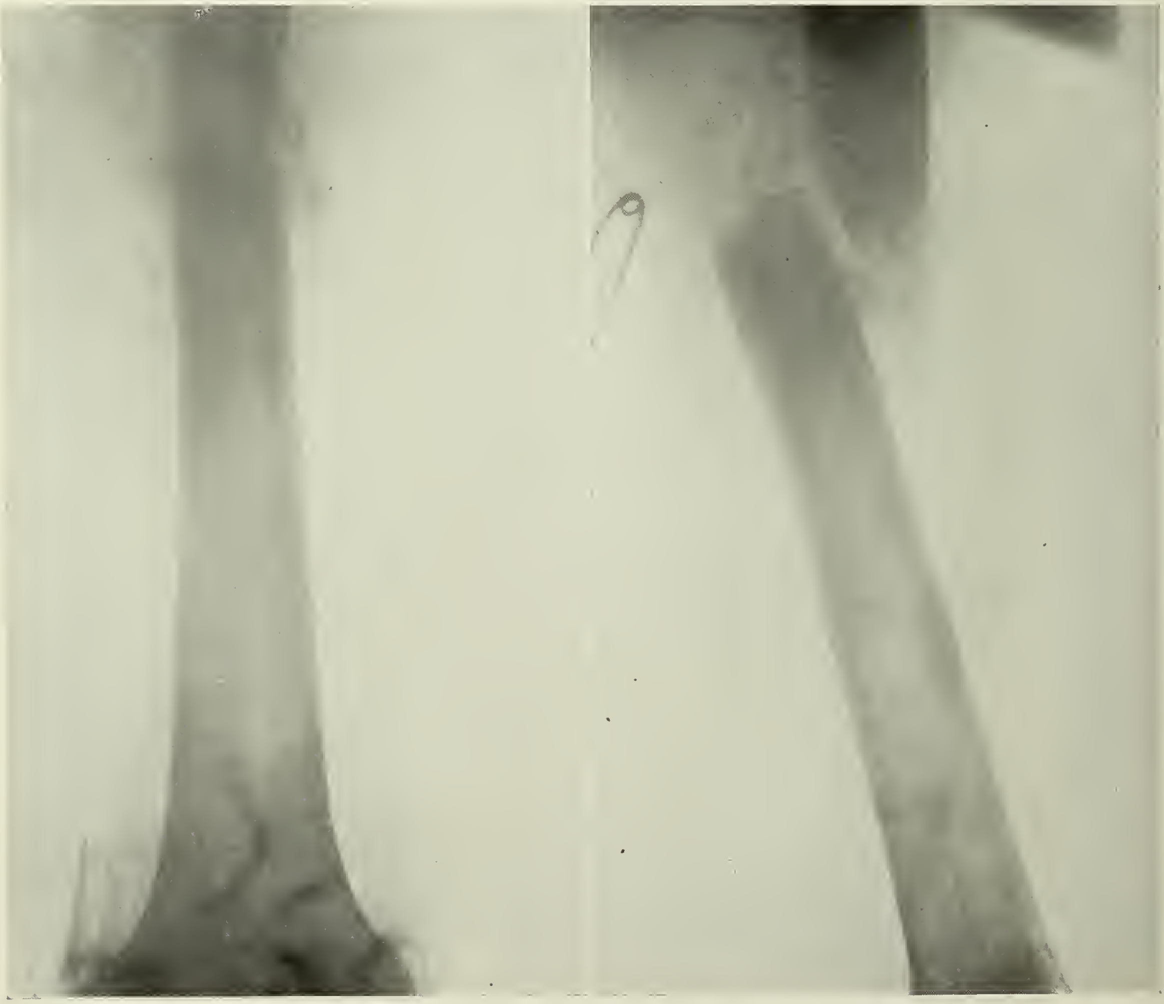
August 15: Left orders to apply zinc oxide ointment on gauze daily, both in front and back of thigh.

August 21: Dr. Gilbert Seashore examined the patient, and the *x*-ray plates. Three points in alignment as compared with the left.

September 11: Crushed the granulations and applied stick nitrate of silver to wound on the back of the thigh.

September 15: Removed Thomas splint and all dressings. There was firm osseous union of the right femur. Comparison measurements revealed that the right lower extremity was one-fourth inch shorter than the left, and the three points of alignment were somewhat overcorrected, which was very desirable in preventing sore foot. Both large toes were out on account of previous flat-feet. There was still a slow-healing wound in front of the thigh, 4 by ¾ inches. There was also a healing wound on the back of thigh, 1 by ¼ inch. The foot, leg, and thigh were covered with moist towels and kept warm with water bags for five hours and then all macerated old skin was removed. Zinc oxide on gauze was applied daily to wound in front and back of the thigh.

Conclusion: Excellent result will be obtained in this case as far as the fractured femur is concerned, but the quadriceps extensor muscle was largely destroyed by the car wheel and consequently extension of the leg on the thigh will be practically abolished, and the patient will later likely have to wear a knee brace, in order not to have the knee double up on him while walking as the anterior support is lacking,—in other words, one might state that he is considerably better off than with an artificial limb.



Case VIII, Fig. 18.—Anteroposterior view reveals perfect alignment of upper and lower fragments with extensive callous formation. Lateral view reveals some overlapping with the lower fragment displaced posteriorly.

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TOXEMIA AS THE CAUSE OF DISEASE

The ordinary definition of *toxemia* is "blood poisoning," a condition in which the blood contains poisonous products, either those produced by the body cells or those due to the growth of micro-organisms. As in all other poisons which originate outside or inside the body, the personal equation comes into play. There seems to be a large army of people who can consume poisons of all kinds through their gastro-intestinal tracts without results that are pathological; but there is another class in which the greatest care must be exercised in order to prevent disorders following the intake of poisonous products. It is impossible to separate these various people into groups, for what is one man's meat is another man's poison.

The idea in this editorial is to call attention particularly to the intestinal toxemias, which probably are by far the greatest in number that we meet with in our practice. Under certain conditions, such as tire, anxiety, worry, and overwork, it is commonly found that, after the ingestion of food, gastric toxemias are very frequent; fortunately, however, they are relieved in most cases by an evacuation of the contents of the stomach, a generous vomiting spell, or, in some instances, the washing out of the stomach by drinking large quantities of water.

Then there are conditions which we are pleased to call ptomaine poisoning, more or less incorrectly. And with these we find most people feel a general malaise, nausea, and then an attack of vomiting, with pain. The vomiting continues for hours, or even days, and with much exhaustion, and shortly after that the patient has returned to his normal balance. Many of these "ptomaine" cases are purely speculative. Meats that are more or less putrid, or are too fresh, together with decomposed foods of other kinds, give occasional attacks of this kind. In the gastro-intestinal tract, however, the situation is a little different because in the event of the food getting through the pylorus and into the intestinal canal the toxic conditions are more slow in their development. These conditions give rise, first, usually to a constipation and sometimes to a diarrhea. Frequently, however, the bowels become confined, and the accumulation within the thirty-six feet of intestinal tract becomes almost incredible. It is commonly noted among people who are thin and underfed, and they are the ones who need the watchful care, not only in their dietary, but in the digestion of their foods. Although we know almost nothing about diet, except in a few isolated instances, there are times when it is necessary to reduce the amount of food, as well as the type of food. Most people eat too much. They gorge themselves while living a sedentary life, and the result is a simple, remedial intestinal toxemia. The man who works in the woods, out-of-doors at hard labor, eats enormous quantities of food, so much so that it would seem impossible for him to digest it; but nature gives and takes, under these circumstances, and the man works it off. He is very rarely troubled with constipation because of the bulk of food in his intestinal canal, as that in itself produces a normal peristaltic movement. It is found, too, that the city man who is more or less inactive and who goes into the woods either to walk or fish, or work, soon develops an enormous appetite; and because he is surrounded by nature's safeguards and nature's aids he suffers almost nothing,—in fact, he is recuperated in spite of the larger quantity of food which he takes.

If the toxic state is due to the growth of micro-organisms within the intestinal tract, then we have a still different condition to deal with, sometimes regardless of the character of the organism. That becomes an attachment, as it were, to the mucous membrane in the intestines, a focus, perhaps many foci, from which poisonous products are developed. And here, too, we have illustrated the various nervous conditions which may be due to intestinal toxemias, and many of the psychoses are almost entirely intestinal in their origin. It is not uncommon to find in patients who are inert, nervously depressed, or occasionally nervously excited, with a definite psychosis developing, that a clearing out of the intestinal canal brings about a rapid improvement and sometimes within a few days complete recovery from both the intestinal and neuropsychiatric states. It not infrequently takes many days to clear out the canal by whatever means are used, and this probably is due to the torpor of the muscles which produce peristalsis, and due, too, to the impaction and accumulation of large masses which are not adequately supplied with secretions. Hence, we often find that it is only after a week or more that there are any signs of improvement in our gastro-intestinal psychoneuroses. Then comes the experiment of proper feeding. If the patient is under supervision and observation, this can be done very easily by giving him the simpler foods, a lesser amount of food, and by keeping him full of fluids, either food fluids or an ample supply of water. The writer has in mind a case of acute psychosis in a young woman who was given morphia, hyoscine, and other sedatives and narcotics to keep her quiet, when, as a matter of fact (which was proved within twelve hours), all she needed was an outlet for her eliminative processes,—a hot bath or hot pack, and a large dose of a simple laxative like castor oil, salts, or calomel, which cleared up the psychosis entirely.

Of course, such cases as the above are exceptional and occur only occasionally, but they do give us an illustration of what is necessary under many of the toxic states which we meet. The newspapers tell us that laxatives are very bad, that is, under the head of the medical advisor of the newspaper this information is given out,—that the results should be brought about by the proper intake of foods, fluids, vegetables, and such things as normally would keep the bowels in good condition. But there are many cases where this has been delayed, and the result is that laxatives are really necessary. Then, too, there seems to be an obsession against the habitual use of salines, such as epsom salts, mineral waters, and so on. Experience does not justify this prejudice, for there are innumerable cases where a daily dose of saline is not only helpful immediately but serves to clear out the intestinal canal without leaving an irritation behind it. But moderation should be employed in the use of any kind of saline, except where one wants to get an immediate result; consequently a pint of water in the morning, to which is added a small portion of saline mineral water or salts of any kind, is not to be carelessly thrown aside as unnecessary. It makes a difference with the digestibility of foods in the individual, and causes the partial, necessary clearing out process of the intestines, and thus keeps the patient in good condition. Of course, for the acute intestinal toxic states, such as appendicitis or acute infection of the gall-bladder, the absence of both food and laxatives is imperative, and the result must be accomplished by bodily rest and careful attention to details, while the necessity of an immediate or future operation must be considered. Doubtess many cases that might become chronic and are due largely to intestinal toxemia, are relieved by the old-time and perhaps the "old-grandmother" method of clearing out the bowels and getting a good start and giving the patient an opportunity to recuperate without a poison lurking in the system. In order to prevent and relieve intestinal toxemias we can pin our faith to a regularity of diet, the habits of the individual, and the abstinence from food in case of over-tire or fatigue until the necessary rest has taken place. Keep your bowels clean and your nervous system free from worry and anxiety and intestinal toxemias become a matter of history.

AN EMOTIONAL CRY FOR DOCTORS

Notice was given in the daily press that the Board of Regents of the University of Minnesota, at their last meeting, deplored the lack of doctors in the country; and the regents felt that it would be a wise thing to encourage the general academic students to attend the Medical School and become fitted for the high calling of the physician. The same cry has been heard in regard to nurses and dentists, and doubtless a good deal of the demand is true. But, even if the small town is without a physician, the large cities have an excess. The only way to regulate it is to urge the younger man in the city who is just beginning his career, to go out into the country for some time, from five to ten years, so that he may have the necessary advantage of country experience, the contact with patients, and become dependent upon his own resources. The larger portion of the graduating class in medicine, as well as those in dentistry and nursing, settle in the cities, presumably mainly for the advantages that come with city life. And yet this is not altogether the reason. Many young men who know they ought to go into the country feel that they are isolated from their fellow-men, that they are not sufficiently confident in themselves to undertake country practice, and that the hardships, privations, and associations are not worth the time. As a matter of fact, however, the young man in the city could spare a few years of time and probably quadruple his income here for a country practice, and not isolate himself entirely from his city associates. The better class of country physicians come to the cities often, taking a few days at a time to attend clinics and lectures, or to do research and laboratory work. This is of great help to them in their country practice, and they can easily satisfy their clientele by showing them that they are keeping up with the times, that they have had experience in clinical and laboratory work; and their ability to take care of the sick they can easily prove.

Then, too, there has been a good deal of comment on the establishment of university hospitals throughout the country, and also the establishment of traveling clinics that go from town to town illustrating, through the social workers and other trained employees, the necessity of doing certain kinds of special work in a definite and orderly manner. This should be no criticism of the physician in the smaller town; in fact, he should be the man to welcome the traveling clinic, and he should associate himself so closely with it that not only he but his patients will benefit by the contact.

Doubtless it is very difficult to persuade many of the young men to take up a course of medicine. It means about seven years' time, and the average young man of today looks upon that as an unnecessary time expended in perfecting himself in medicine. Little does he know that he only is approaching the threshold when he graduates; and even though his last year in the hospital puts him in a position where he can display his training, he is still, then, only on the edge of the threshold because his character, his ability, and his usefulness will depend upon his association with his patients. Too many men waste their time studying medicine and endeavoring to practice medicine when they should have chosen some other calling. The average medical candidate, when he gets through with his school work, feels that he is so highly and so technically trained in the ultrascientific methods of medicine that he should be established in a large town. THE JOURNAL-LANCET knows of a number of men who have gone out into practice in the smaller towns who have made names for themselves, who have endeared themselves to the communities, who have never lost in prestige, and who are as capable as their fellows in the city.

Some other solution ought to be tried before the cry is too loud for more doctors to be graduated. Those graduated should be trained more, trained in general medicine, trained to do some intelligent work in almost any department except where it is too highly specialized. And in order to do this, the University will probably feel under obligations to change some of its methods and to give more time in the preparation for the doctor rather than bringing up the man of science.

STRIKES AND STRIKERS

In order to add one more kick to a decadent condition, the public is called upon to endure the possibilities of a gigantic strike. It is presumed that comparatively few working men belong to the striking element, that the majority of working people are not unionized or controlled by either the agitators or the headquarters of the unions, and yet a sufficient number are under unionization and are so bound and controlled that they are obliged to give up their positions when called upon by their leaders. They not only deprive themselves of many hours, and perhaps days and months, of work, but many dollars, which should legitimately pour into their individual treasuries.

It is very difficult for the outsider to understand just why this country should be put to such tremendous inconvenience for the benefit of comparatively few. It has been asserted by the press that something anywhere between 400,000 and 1,000,000 men will be involved in the strike if it reaches its full height. This is an outrage on the other 104,000,000, and some method should be determined, some conciliatory method, whereby an agreement is reached by the so-called heads of unions, the operators of mines and railroads, and the U. S. Government. Some years ago when a strike was on in Chicago and the governor of the state was evidently disinclined to interfere, President Grover Cleveland stepped into the breach. He sent several regiments of soldiers into Chicago, with orders to quell the strike and to shoot anyone who interfered. The strike lasted about two days after President Cleveland took a hand in it. It seems to be the other way round at the present time. The strikers are interfering with those who want to work, who are willing to work, and who perhaps need the work, by shooting or other means of coercion. The result is that a good part of the country is disturbed and uneasy about the consequences. The atmosphere is the same which surrounded the war and everything pertaining to it in the way of the advent of radical socialism and the bootlegging propensities of many who saw an easy way to get money.

The worst feature of the whole strike situation at this moment of discussion seems to be the stirring up of an element, which may be associated with unions or in all probability is an outside element, that is ignorant, illiterate, and deficient mentally. They are the ones who really do the damage, although it must be admitted that they are more or less under the mob instinct which is determined to destroy whatever is created for the common good. Just as the war showed us that a large percentage of the people were defectives, mentally and physically, so the strike shows the same thing. If the better element in the field of labor could control the situation and could secure a compromise with the employer through the assistance of the Government, these strikes ought to be indelibly stamped out. The situation is really one that belongs to a time of chaos, and is a repetition of "The Story of Mankind," in which upheavals were occurring in religion, government, and commerce. Then, too, it is suggestive that we are losing some of the good minds of the last decade; that there are fewer men who are qualified to step in and administer governmental affairs, and fewer men who have the broad view of what labor should be. It is unfortunate that the good laborer who means well, who labors well, and who is interested in what he attempts, should be forced down by a class of men who are known to be defectives. The element of politics is so strongly ingrained in the average politician that he cannot see a striker's war from the proper viewpoint. He fears for his own personal advancement. In other words, he is afraid he will lose his job as a politician, when in all probability he cuts a lesser figure than the real workman who is striving to maintain his position as a worker and to support the family that he is bringing up. It is too bad, also, that some man at the head of a great government, such as we are supposed to have, is not able by a command to repress these defective people from putting the general public to so great discomfort and in danger of their lives, and not allow them to postpone, by word of mouth, the settlement of a business proposition that means peace and prosperity.

A NEW MEDICAL MONTHLY

The *American Medical Press* is the name of a new medical monthly journal, the first issue of which lies before us, and of which F. H. Mechan, A. M., M. D., is the editor, and Mr. Harvey Knox is the business manager.

The aim of this new and vigorous youngster is to attack the problems now before and to come before the medical profession, and this first issue gives its readers a foretaste of the battle it will wage. Dr. Edward H. Ochsner, of Chicago, writes of "The Menace of Ultra-Specialization in the Practice of Medicine"; Dr. C. L. Bonfield, of Cincinnati, deals with "Medical Education and the Future of the Medical Profession"; Dr. Norman Bridge, of Los Angeles, has a thoughtful paper on "The Nursing Situation in Relation to Hospitals and Care of the Sick"; and Mrs. C. M. Jones, of Kansas City, gives "A Study of Seventy-five Unmarried Mothers."

The courage that begins the publication of a medical journal today gives the best assurance of its success.

BOOK NOTICES

Diseases of the Skin. By Henry W. Stelwagon, M.D., Late Professor of Dermatology in the Jefferson Medical College, etc. Ninth Edition, revised with the assistance of Henry K. Gaskill, M.D., Attending Dermatologist to the Philadelphia General Hospital. With 401 text illustrations and 29 colored and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $10.00 net.

During the preparation of this edition occurred the death of Dr. Stelwagon, and, while this misfortune to the medical profession no doubt influenced the character of the text, the materials for the revision were so fully prepared that Dr. Gaskill has been able to carry out the author's plan, and to make this a worthy successor of the previous editions that have established the work of Stelwagon as a standard treatise on diseases of the skin.

A review of a book of more than thirteen hundred pages must be of necessity of a general nature. In a work like this intended for practitioners the two subjects most interesting to readers are diagnosis and treatment, particularly the former. A general practitioner is quoted as having said to a skin specialist that he (the general practitioner) found much trouble in giving a name to a skin disease, but usually not much difficulty in curing it. The specialist replied that with him it was just the reverse, he usually could name the lesions, but found them hard to cure. The clear descriptions in this book and the comments on differential diagnosis, added to the abundant and excellent illustrations, cannot fail to be of great help to the man who is stuck in a diagnosis, while the simplicity of the classification will aid the search for a description to suit the particular case when an unknown and unusual eruption presents itself. As for the directions for treatment, they are highly commendable, not merely a list of all the remedies that have been recommended for each disease, but a judicious selection of the best and a clear description of and directions for their use, so that a definite plan may be followed in the treatment.

In a new edition it is natural to look for additions that have been made to a subject since the previous rewriting. The last edition of Stelwagon was published in 1916, and for the next two years medical men were for the most part engaged in doing their part in carrying on the great war, having little time for research work. At least from the standpoint of the general practitioner, since the war the additions to the science of dermatology have not been marked, and consist chiefly in the recognition of certain rare affections, such as acrodermatitis hiemalis, keratolysis exfoliativa, and amebiasis cutis, whose names have not as yet become at all familiar.

Wm. Davis, M.D.

Ephraim McDowell, "Father of Ovariotomy" and Founder of Abdominal Surgery. By August Schachner, M.D., F.A.C.S. of Louisville, Kentucky. Philadelphia and London: J. B. Lippincott Company, 1921.

Although many laparotomies had been done previously, chiefly in the form of Cesarian sections, McDowell's admiring biographer is well justified in his claim that the first ovariotomy deliberately undertaken was the famous one performed in Danville, Kentucky, in December, 1809, by Dr. Ephraim McDowell. Numerous and vigorous efforts have been made to cloud his title and to place elsewhere the credit that belongs to him, but there it is and there it will remain, and one of the great contributions to surgery will always be the paper McDowell published in 1817 in the *Eclectic Repertory*, in which he describes this and two other successful operations by himself under the title "Extirpation of Diseased Ovaria."

As an addition to the science of surgery this was not such a great affair, as the technic was of the simplest, but its moral advantage to medical progress and its historical importance cannot be overestimated. The last mentioned feature, the historical side, is elaborately set forth by Dr. Schachner in this interesting volume, which covers McDowell's whole career and is illustrated with numerous photographs, among which, besides a reproduction of his portraits, are shown his house, his office, his memorial monument, fragments of his tombstone, and even his door-knocker. There is also a photograph of a painting representing the first ovariotomy, the artist's conception of the scene being a highly plausible one, but with no suggestions of the presence outside the house of an angry mob ready to lynch McDowell should his patient die, a part of the setting of the affair which tradition furnished. The biographer declares the only foundation for the mob story to be a declaration by a preacher from the pulpit before the operation that McDowell was attempting an impossible thing, and in the event of the woman's death he would be a murderer.

The story would be incomplete without the last chapter, which gives the history of the patient, Jane Todd Crawford. Had she been a woman of less courage, the first ovariotomy might have waited for the surgical era of anesthesia and asepsis.

Wm. Davis, M.D.

Clinical Electrocardiography. By Frederick A. Willius, M.D. Section on Clinical Electrocardiography, The Mayo Clinic, Rochester, Minnesota, and The Mayo Foundation, University of Minnesota. Octavo of 188 pages with 185 illustrations. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $5.00 net.

The author adheres closely to his title, and writes a simple and readable presentation of the principles of electrocardiography and their application to the study of patients. The strictly technical details are reduced to a minimum, though there are adequate pictures of the electrocardiograph and its wiring and of the anatomy of the heart.

Various clinical studies of large groups of patients with electrocardiograms are summarized in the different chapters. Five hundred cases of auricular fibrillation have been analyzed and are here reported in summarized form, as are also a group of abnormalities of the T wave and a series of tracings of patients with angina pectoris.

The significance of abnormalities from the standpoint of prognosis is especially emphasized. The author consciously refrains from discussing symptomatology and treatment.

As a simple, concise discussion of the facts proved and generally recognized about the electrocardiograph, with the addition of studies made on large groups of patients seen at the Mayo Clinic, it can be recommended to any practitioner of medicine who wishes to learn about the practical value of the electrocardiogram. It is profusely illustrated and has an extensive bibliography.

Olga S. Hansen, M.D.

Gynecology. Edited by Emilius C. Dudley, A.M., M.D., LL.D., Professor of Gynecology, Northwestern University Medical School. Obstetrics. Edited by Joseph B. De Lee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. Cloth, Price, $1.75. Pp. 384, with 37 illustrations. Chicago: Year Book Publishers, 1921.

This volume gives, in abstract, the 1921 publications of interest in the progress of gynecology and obstetrics. It is of especial value to those who wish to obtain a general review of the literature in these subjects quickly. The general practitioner can easily and profitably review this volume. The subject matter has been arranged logically so that any one thing of particular interest can be quickly found. There is a full index in the volume and also an index of names. The occasional terse notes by the editors, at the ends of abstracts, are to the point and help the reader in his valuation of certain authors' conclusions.

H. M. N. Wynne, M.D.

NEWS ITEMS

Dr. H. F. Botts has moved from Billings, Mont., to Seattle, Wash.

Dr. W. G. Smith has moved from Hettinger, S. D., to Lodgepole, S. D.

Dr. E. C. Hartman has moved from Bismarck, N. D., to Brandenberg, Ky.

Trinity Hospital Association has purchased a site for a hospital building at Minot, N. D.

Dr. D. G. Colp, of Robbinsdale, has gone to Europe to visit the clinics of the principal cities.

Dr. Ross, whose Fellowship in the Mayo Foundation expired July 1, has located at Toronto, Canada.

Dr. R. E. Anderson, of Willmar, was married last month to Miss Caroline M. Schwartz, of the same city.

Dr. H. M. Wheeler, of Grand Forks, N. D., was married on July 3 to Miss Mae McCulloch, of Cleveland, Ohio.

A site has been selected for a new city hospital for Eveleth, and Mr. E. H. Berg, of that city, has been appointed architect of the building.

Dr. H. E. Bowers, of Lake City, has purchased of his brother, Dr. J. T. Bowers, the latter's interest in the firm of Drs. Bowers & Bowers.

Dr. A. G. Beyer, of Red Wing, has returned from New York, where he spent several months in postgraduate work in eye and ear hospitals.

The Visiting Nurses' Association of Minneapolis has advanced its charge for each visit for an hour or fraction thereof from 75 cents to $1.00.

Dr. John H. Martin, a pioneer physician of the Black Hills, S. D., died in Ft. Morgan, Colo., last month. The remains were buried in Centerville, S. D.

Dr. E. L. Strader, superintendent of the Mineral Springs Sanatorium, Cannon Falls, was married last month to Miss Blanche Lizee, of the same place.

Dr. Leo Murphy, who has completed his Fellowship in the Mayo Foundation, has left the Clinic to begin practice in the Nicollet Clinic, Minneapolis.

Dr. Blanco has left the Mayo Clinic, having completed his Fellowship, and has gone to Buffalo to work as orthopedic surgeon in Dr. Butsch's Clinic.

Dr. A. S. Hoiland, formerly of Argyle, has completed an extended course of postgraduate work in New York City, and is temporarily located at Benson.

The Hillside Hospital of Beach, N. D., has closed its doors because the lease of the building it occupied expired and the building was sold. This is a public loss to Beach.

Work has been resumed on the Deaconess Hospital building at Billings, Mont., the foundation of which was laid in 1917. The first unit will have a capacity of sixty beds.

Dr. E. F. Swarthout, of Sykeston, N. D., is doing postgraduate work in surgery in the Medical School of the University of Minnesota. His course will probably cover a year.

Dr. Hugo J. Hartig has been appointed a member of the Minneapolis Welfare Board. Dr. Hartig is a graduate of the Medical School of the University of Minnesota, class of '14.

Dr. E. H. Richter, who graduated from the Medical School of the University of Minnesota a year ago and has spent the past year in the University Hospital, has located in Sauk Centre.

Dr. W. B. Cannon, Professor of Physiology at Harvard Medical School, gave a Mayo Foundation lecture at the Mayo Clinic, June 20. His subject was, "Effects of the emotions on the body."

Dr. Walter N. Lee, of Madison, left July 7th for a three weeks' encampment with National Guard Troops at Camp Phillip Shelley, Lake City, Minnesota. Dr. Lee is a Captain in the Medical Corps.

Dr. John M. Duff, of Madison, S. D., died last week at the age of 78. Dr. Duff was a Civil War Veteran and a pioneer physician of South Dakota. He was the holder of a Congressional medal of honor.

The baby clinic at the North Dakota State Fair next week promises to be the largest yet held. Dr. J. C. Dillard, of Fargo, is in charge of the clinic. Prizes will be based on the improvement made since last year's exhibit.

The fifteenth annual meeting of the Minneapolis, St. Paul & Sault Ste. Marie Railway Surgical Association will be held at Minot, North

Dakota, September 25 and 26. A two full-day scientific program has practically been completed.

The Missoula (Mont.) Clinic has been incorporated with a capital stock of $51,000. It is authorized to operate hospitals and do a general medical and surgical business. The Drs. W. T. and C. R. Thornton, of Missoula, are at the head of it.

Dr. Samuel F. Hance, a Minnesota physician who came to Minneapolis in 1873, died in Fairport, N. Y., some days ago at the age of 97. Dr. Hance was a Civil War Veteran and had practiced in Aurora, Ill., before coming to Minneapolis.

Dr. Harold S. Boquist, of Minneapolis, was married last week to Miss Marion Scovell, of Fridley. Dr. Boquist is a recent graduate of the Medical School of the University of Minnesota, and is now on the staff of Glen Lake Sanatorium.

Dr. H. L. Lamb, who has spent most of the time since retiring from service in the late war in the eye, ear, nose, and throat hospitals of New York and Chicago, has located in Little Falls, and will limit his practice to eye, ear, nose, and throat work.

Dr. Egil Boeckmann, of St. Paul, was made last month by the Governor of Minnesota a regent of the University of Minnesota. Dr. Boeckmann graduated from the academic department of the University, and the appointment is a very commendable one.

Dr. William P. O'Malley, of St. Paul, died last week at the age of 48. Death was due to an automobile accident. Dr. O'Malley was a graduate of the Medical School of the University of Minnesota, class of '02, and had practiced in St. Paul since his graduation.

A Duluth physician was fined $40 last month for not reporting a contagious disease within twenty-four hours after its diagnosis. This was a venereal case, and was the first case under the new city ordinance requiring the reporting of communicable diseases.

A Butte (Mont.) paper says that three physicians were arrested in that city last month for issuing too many liquor prescriptions. One of these physicians, it was asserted by the prohibition agent, had issued forty prescriptions in one day. Is Montana wet or dry?

Dr. D. L. Bristol, whose appointment as head of the Department of Public Health and Preventive Medicine at the University of Minnesota has been confirmed by the Board of Regents, comes from Harvard. He will hold a full professorship and receive a salary of $6,000.

Meeker, McLeod, and Wright Counties are considering the establishment of a state-aided tuberculosis sanatorium in that district. A meeting was held in Glencoe last month to consider the matter, and another meeing will be held September 1 in Willmar for further consideration.

The Sioux Valley Eye and Ear Academy, composed of specialists in Iowa, Nebraska, and South Dakota, held its nineteenth semi-annual session in Omaha, Neb., on July 11. The attendance was good, and the program excellent. Several papers were read, case reports were given, and operative clinics were given in the city hospitals.

The famous Mayo house-boat, which has done "social" service on the Mississippi river for many years, has been supplanted by a beautiful screw-propeller launch dedicated to the same kind of service by Dr. W. J. Mayo. It was christened with a broken bottle by Dr. Mayo's daughter as it took to the water (in the river) last week.

The citizens of Mapleton, at least several hundred of them, gathered together to give a reception and pay a tribute to their pioneer physician, Dr. Ira Bishop, who has retired from practice. A picnic supper at Lura Lake, a number of speeches, music, and the presentation of a handsome chair to Dr. Bishop, made up a delightful program.

The inability of the Medical School of the University of Minnesota to take care of all who apply to take the medical course, is becoming a serious matter. Dr. W. J. Mayo, at a recent meeting of the Board of Regents, suggested that the faculty of the School go on double shift. Physicians do this stunt in emergencies, but can teachers do it continually?

The Montana State Medical Association held its forty-fourth annual meeting at Great Falls this week. It drew to that city the annual meetings of the following associations: the Montana Tuberculosis Association, the Montana Nurses' Association, and the Montana Pharmaceutical Association. This simultaneous meeting of several societies secures a reduced railway fare on the certificate plan.

The traveling public health clinic of the North Dakota Tuberculosis Association is working this year in the sparsely settled districts in the western part of the state where there are few doctors. Last year the clinic held meetings attended by over three thousand people, and will reach more people this year, and all of them are in need of help. This noble work is under the direction of Dr. James Grassick, of Grand Forks, and it is all gratuitous work.

The following fellows received the degree of M. S. in Surgery from the University of Minnesota, June 14: Dr. Andrews, Dr. Brock, Dr. Hoon, Dr. A. S. Jackson, Dr. Magoun, Dr. Mastin, Dr. Parham, Dr. Renshaw, Dr. Ross, and Dr. Wiese. Fellows receiving the degree of M. S. in Medicine were Dr. W. C. Chaney and Dr. Buchanan. Fellows receiving the degree of M. S. in Urology were Dr. Knauf and Dr. Latchem. Dr. Mahle received the degree of M. S. in Pathology, Dr. Bozer the degree of M. S. in Otolaryngology, and Dr. Busman the degree of M. S. in Dermatology.

The board of directors of St. Luke's Hospital of Duluth has perfected an organization of the attending physicians and surgeons. An advisory or executive medical board of seven, consisting of Drs. J. J. Eklund, S. H. Boyer, A. N. Collins, Robert Graham, D. E. Seashore, D. L. Tilderquist, and F. M. Turnbull, has been appointed. The directors also have selected a staff of fifty members with Dr. J. J. Eklund as chief, and have approved a list of twenty-five attending men. The staff met and perfected a permanent organization on July 7 with Dr. J. J. Eklund as chief, Dr. Robert Graham as vice-chief, and Dr. M. H. Tibbetts as secretary. Provisions were made for regular monthly meetings of the staff at the hospital.

Great Falls, Montana, gives the business world a lesson in efficiency and economy that is worth while. The expense of the City and County Health Office under a full-time health officer for the past year was less by $2,000 than the expenses of the office for the preceding year under the old part-time method. It was expected that the new full-time plan would be both more extensive and more efficient, therefore $22,000 was appropriated because the cost of the work for the previous year had been $17,000. Dr. G. A. Fuson, the City and County physician, did better work than had ever been done, and the cost of it was $15,000, which is $7,000 less than the appropriation and $2,000 less than the cost of a less efficient service.

HIGH-GRADE TECHNICIAN WANTS A POSITION

A position as technician is wanted in a laboratory, hospital, or clinic, by a young woman who took the laboratory course in the General Hospital of Minneapolis. She also worked for a year and a half with one of the best laboratory men in the Northwest, and also worked a year in the largest clinic in Minneapolis, doing all its work. The best of references as to character and ability will be given. Address 259, care of this office.

PRACTICE FOR SALE IN MINNESOTA

A practically unapproved practice in Minnesota is offered for sale at the price of office and residence. Practice well established; thirty-five miles from the Twin Cities; population, 1,200; good roads; good collections; people mostly of German descent. Address 260, care of this office.

$10,000 GENERAL PRACTICE FOR SALE IN IOWA

Established 12 years; good fees, collections 100 per cent; population 2,300; thickly settled surrounding rural community; good schools, fine churches; one of the most modern and best equipped 35-bed hospitals in Iowa. Practice can be easily increased to better than $15,000 by doing surgery or eye, ear, nose and throat; nothing to sell but office equipment, drugs and supplies. Address 258, care of this office.

MINNEAPOLIS SANATORIUM FOR SALE

On another page of this issue will be found an advertisement of a Minneapolis sanatorium for sale.

LOCUM TENENS WANTED

A physician is wanted to take charge of a practice in a Minnesota village for a couple of months, beginning as early in July as convenient. Address 254, care of this office.

EXPERIENCED TECHNICIAN WANTS CHANGE OF POSITION

She is doing water analysis, stomach contents, spinal fluids, acidosis, and all routine laboratory work. Have studied blood chemistry, etc. Best of references. Address 252, care of this office.

PRACTICE FOR SALE

If taken before August 15, I will sell for invoice price of office equipment. Live town in Southern Minnesota. One other physician. Population, 1,000, in prosperous community of Germans, Scandinavians, and Americans. Collections better than 95 per cent. Residence, optional. Going to specialize. Fine location for Protestant. Address 253, care of this office.

POSITION WANTED BY TECHNICIAN

A recent graduate from the Laboratory of the Minneapolis General (City) Hospital desires a position. Can do all routine laboratory work and general clerical work. Will go outside of the city to accept work, and will do so at a moderate salary. Best of references. Address 257, care of this office.

MINNEAPOLIS OFFICE FOR RENT AFTERNOONS

A general practitioner will rent his office for afternoons to a young surgeon. Office is fully furnished and equipped and is in one of the best physicians' buildings in the city. Rent reasonable. Address 248, care of this office.

PHYSICIAN WANTED FOR JULY AND AUGUST

A substitute physician for practice in North Dakota during July and August. Address 250, care of this office.

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THE MEDICAL SCHOOL, THE MEDICAL PROFESSION, AND THE PUBLIC WELFARE*

By E. P. Lyon, Ph.D., M.D.
Dean of the Medical School, University of Minnesota
MINNEAPOLIS

I am glad to have this opportunity of addressing the Hennepin County Medical Society. I feel that all members of the medical profession and, in particular, of that organization which represents the profession in Minneapolis, have an interest in the Medical School of the University of Minnesota. In a measure, I shall give an account of stewardship.

I have now served as dean of the Medical School nine years,—as long as did my distinguished predecessor, Dr. Frank Wesbrook. His period of deanship was one of marked progress. The various medical colleges in the Twin Cities were united in the State University. Standards were raised. In particular, a comprehensive building plan was inaugurated, with the realization of three important units, the Elliot Memorial Hospital, Millard Hall, and the Institute of Anatomy. There are no better buildings devoted to medical education anywhere. They are a monument to Dean Wesbrook and his faculty and to the progressive spirit of Minnesota.

Toward the end of his régime, under the influence of President Vincent, the faculty was reorganized. This move had Dean Wesbrook's approval, and he worked hard to make it successful. On the whole this difficult undertaking was as well performed as could be expected, but it left a complicated situation, which has persisted. In the spring of 1913, Dean Wesbrook accepted the presidency of the University of British Columbia.

The nine years that have elapsed since his departure have been strenuous and difficult. Some things which were confidently expected have not been accomplished,—in particular, the further realization of Medical School building plans. Except for the completion of the service building, which added fifty beds to the hospital, not a brick has been laid. Opinions differ as to whether this was inevitable.

The needs and plans of the Medical School have been repeatedly presented to the Board of Regents. I believe the Board is sympathetic and will do all that they can consistently with their duty to all parts of the great institution under their charge. The war, the great growth of certain colleges, the high cost of building, are all factors in the situation.

The progress of the last nine years has been largely internal and educational, rather than material. Such progress is just as important as increased buildings and beds, but it is harder to demonstrate and evaluate. I think the educational changes constitute a real advance, and I ask your careful consideration of them. However, I shall mention first certain elements of change which can be expressed in material terms and, in part, statistically.

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*Address before the Hennepin County Medical Society, May 1, 1922. Statistics and information revised to July 1, 1922.

THE STUDENT BODY

The number of students in the Medical School has steadily increased. Such increases have occurred all over the country; but this school was one of the first to meet the rush and to feel the necessity of limiting its registration to such number of students as could properly be cared for and thoroughly educated. The admission requirements have been strengthened and are more rigidly enforced than formerly, but the number of applicants is larger than we can receive.*

The number of graduates has increased even faster than the number of freshmen. Some might interpret this as due to laxity of scholarship in the school. It is rather due to the better class of students matriculated. Under the competition for admission to the Medical School, the premedic students work harder, and we get better prepared students. From the 1921-1922 Freshman class we dropped outright only two students. Formerly those who failed, or were discouraged by poor results to the point of leaving, often constituted 15 to 20 per cent of a class. The wastage is less nowadays. In addition to this, our elastic curriculum, quarter system, and personal supervision by class advisors save a good many men, who demonstrate later their ability as physicians. We try to treat our students as individual human beings.

TABLE 1

	Total Students	Graduates	Freshmen
1912-13..........	177	45	48
1913-14..........	169	31	66
1914-15..........	217	36	75
1915-16..........	258	34	80
1916-17..........	264	38	73
1917-18..........	296	41	83
1918-19..........	286	54	73
1919-20..........	296	59	95
1920-21..........	327	76	90
1921-22..........	324	76	89

The number of students and graduates for the past ten years is shown on Table 1.

LIMITED REGISTRATION

During the last four years the Freshman class has been limited to eighty to ninety students. A primary factor in setting this limit has been the supply of anatomical material, but that is about the number that our laboratories and hospital can accommodate.

The policy of limiting registration in a State institution has been questioned. I have no time to discuss this policy here. Suffice, for the present, the opinion that the results have justified the policy.

In schools that take all comers it is the custom to "flunk out" great numbers in the first and second years. This is sometimes done arbitrarily and on insufficient data, and does not either retain the men who will make good doctors, nor get rid of those who will not be a credit to the profession. We think we do better by devoting our attention to a smaller, carefully selected group. Our students are chosen chiefly on a scholarship basis. We also get as close a personal evaluation of candidates as possible.

Erroneous impressions prevail as to the number rejected. Last year we had 200 applicants, but only 103 of these were wholly free from scholarship deficiencies. Out of the 103 we accepted 86. Three "federal board" men, disabled veterans, were also accepted.

The limited registration is a temporary expedient. The Medical School looks hopefully forward to such an increase in its hospital and laboratory facilities as will permit the enrollment of all students who desire to secure their medical education at the University of Minnesota. We think a State institution should be able to take all who apply, particularly from the State in which it is located. We have been asking for these facilities for years. May we not have the assistance of the organized profession in securing the necessary buildings and money? It would also help if the profession would work for a fuller compliance with the anatomical law, by which all unclaimed bodies are supposed to be turned over to the University. It is believed that not a few such bodies are buried at public expense.

THE BUDGET

The President and Regents have been generous in providing increased funds for the Medical School. Table 2 shows the budgets of the Medical School and hospital for the last ten years.

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*At the date of proof reading, July 20, the data on the consideration of applicants for the Freshman class of 1922-23 are available, and are as follows: Total number of applicants, 197; number accepted, 100; accepted provided there are further vacancies, 7; rejected for non-residence, 22; rejected for subject deficiencies (that is, not all required subjects completed), 28; rejected for scholarship deficiencies, (that is, average grades not up to the requirements), 20; rejected for deficiencies in scholastic record and required subjects, 20.

TABLE 2

BUDGETS

	Medical School	Hospital	Total
1912-13	$103,775	$79,600	$183,375
1913-14	125,730	79,600	205,330
1914-15	129,440	80,000	209,440
1915-16	137,072	86,950	224,022
1916-17	150,380	89,450	239,830
1917-18	161,175	100,200	261,375
1918-19	158,430	100,200	258,630
1919-20	206,000	132,200	338,200
1920-21	241,655	165,536	407,191
1921-22	234,347	175,548	409,895

The increased support is expressed in better salaries, enlarged staff, and larger supply of funds. In part the budget increases were absorbed by increased prices. However, a good many actual additions have been made, for example, clinical salaries, social service department, separate departments of Bacteriology, Pediatrics, Ophthalmology, teaching fellowships, etc. Some new equipment has been added, although it is doubtful if, in the war period, the new equipment kept pace with deterioration.

Janitor service, heat, light, and repairs are taken care of on the general University accounts. The pro rata of the Medical School in these expenditures for 1920-21 is estimated at $41,174.98. This should be added to the budget for that year to get the exact amount expended for the Medical School.

THE FACULTY

The faculty of the preclinical departments has been strengthened by the addition of such nationally known scientists as Drs. C. M. Jackson, J. F. McClendon, A. D. Hirschfelder, A. T. Henrici, and A. T. Rasmussen; and we have added several promising young men of our own training.

The clinical faculty has been largely increased in part-time men. This seems, in a measure, a reversion from the principles governing the reorganization. The additions have, however, been necessary on account of the changed methods of teaching (particularly the clinical clerkship); also on account of the enlarged student body, the growing dispensary, and the large University services at the municipal hospitals.

To the clinical faculty have been added certain full-time men of fine training and promise. I mention Dr. Angus L. Cameron in Experimental Surgery, Dr. George Fahr in Medicine, and Dr. J. C. McKinley in Nervous Diseases.

THE DEPARTMENTS

Pediatrics, Ophthalmology and Oto-Laryngology, and Bacteriology have been made independent departments. In every case the change has justified itself in increased scientific activity and better teaching.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

By action of the Board of Regents last spring, a new department with the above name was established. It will be in the Medical School, but will serve the entire University and the State at large. An initial budget of $15,000 has been approved. Dr. H. S. Diehl, one of our graduates, who had excellent public health experience with the Red Cross in Poland, is in charge. Dr. L. D. Bristol, nationally known scientist in public health, has accepted a professorship in the department and will be on duty next September. Co-operative relations with the State Board of Health and with the Minneapolis and St. Paul Health Departments, and with the voluntary public health bodies, have been arranged.

Courses of various kinds will be organized, also curricula leading to careers in public health. It is hoped not only to educate some leaders in public health proper, but also to turn the emphasis of the training of our regular graduates more toward the preventive aspects of medicine.

DISPENSARY

In 1915 the Dispensary was moved to Millard Hall. This move has been justified from both teaching and service standpoints. It cares for 15,000 patients annually, making 60,000 visits. It has outgrown its quarters. The idea of a central dispensary building, including the Medical School, student health service, and dental college out-patient department, has been broached. This would house the diagnostic clinic recommended by the Billings-Vaughan-Finney Committee.

THE UNIVERSITY HOSPITAL

By act of the last legislature the combined hospitals of the University are called the "Minnesota General Hospital." The Elliot Memorial is the first unit of a proposed 550-bed institution. The Elliot has 200 beds. It is full, and there is always a long waiting list.

That part of the General Hospital act which provided that patients might be sent by probate judges at the joint expense of the county and state has not been very successful. The Iowa law, providing that indigent patients may be sent at state expense, is better and should be our model. We should begin by getting such an act covering children. The medical profession can be of great help if they will assist us in this matter. The hospital exists primarily for the patients and to restore them to productive citizenship. The policy of supporting this hospital from educational funds rests on wrong psychology and injures the University. It should be abandoned.

PSYCHOPATHIC HOSPITAL

The Medical School will advance again in the next legislature the proposal of a psychopathic hospital serving the State Board of Control, the courts, and the educational forces of the state, as well as medical education and the medical profession. This plan was endorsed by your Society, by the State Medical Association, and by many other bodies. We shall hope for your active support next fall and winter.

TODD MEMORIAL HOSPITAL

Colonel Frank C. Todd, who died in 1918 while commander of the hospital at Camp Dodge, left a memorandum concerning a hospital for Eye, Ear, Nose, and Throat work. It is the desire of Mrs. Todd, of Dr. Todd's friends, and of the Medical School to actualize his suggestions in the form of a memorial to this patriotic and able physician. Such a hospital is badly needed in the state. Mrs. Todd has donated $20,000 to this enterprise, and Mrs. E. C. Gale an equal amount. The University has approved the plan, set aside ground in the General Hospital group, and appropriated $110,000 toward the building. It will take $100,000 more to accomplish all that Dr. Todd planned. A campaign is being carried on to raise this money. It is hoped to erect the hospital within a year.

THE BAKER BEQUEST

By the will of Howard Baker, at one time a citizen of Minneapolis, the University has received stock valued at $40,000 to be used for the Department of Surgery. So far the dividends have been used for improvements and equipment. Perhaps, on sale of the stock, the capital sum may be put into the purchase of radium.

Whatever may be the eventual disposal of the bequest, it illustrates what should be a more frequent occurrence, namely, gifts from private sources to the Medical School. No better opportunity exists anywhere for devoting funds to a worthy purpose and to forward a permanent memorial. At present such needed buildings as a nurses' home, a children's hospital, and a woman's pavilion await some generous and wealthy citizen.

I shall now speak of some changes of educational character which I think have improved the School.

CURRICULUM

The curriculum has been revised so as to permit a certain amount of election on the students' part. This makes the students think about their work, develops their initiative, and helps them to strengthen weak spots and contributes to research.

REQUIRED INTERNSHIP

The rule adopted in 1911 requiring a fifth year of internship for the M. D. degree went into effect in 1917. This intern year is in charge of a committee of which Dr. J. C. Litzenberg is chairman. This committee has been able to secure excellent internship for our men in many of the best hospitals of the country. Our graduates have acquitted themselves well in competition with graduates from other schools. They have secured more than a numerical share of residentships, fellowships, and other opportunities that come to the successful interns.

STUDENT INTERNSHIP

By a much valued arrangement with the Minneapolis General Hospital, the St. Paul City and County Hospital, the Miller Hospital, the Glen Lake Sanatorium, and the State Hospital for Crippled and Deformed Children, most of our seniors spend the last six months of the four year course living in a hospital and in the actual observation of cases. This educational experiment was described in *Minnesota Medicine,* April, 1919; and the results of three years' experience with the plan were presented at the educational conference in Chicago last March. This paper has been published in the proceedings of the Association of American Medical Colleges. The plan is unique with Minnesota.

CLERKSHIP

Previous to the student internship each student receives six months' intensive training in the personal study of cases, physical examination, history taking, and laboratory work, under careful supervision, at the University Hospital. The time is divided as follows: eight weeks, internal medicine; eight weeks, surgery; four weeks, obstetrics; and four weeks, pediatrics.

RESEARCH

Research has been fostered. Some of our departments are among the most productive in the country. All are doing good investigative work. The elective curriculum, the Geist anatomical prize, the Cutts prize in surgery, and the fellowships and special grants have stimulated the student body and faculty alike. The number of research publications from our School has increased.

PRACTITIONERS' COURSES

Several years ago the Medical School organized "clinic days" for the profession of the state. These were given up during the war, and have not been revived, because of clinic weeks organized by the Hennepin County and Ramsey County Medical Societies. In these the University clinicians take part.

In May, 1921, a practitioners' course of four weeks was successfully carried on. This was repeated, with modifications, in May, 1922. There were 32 physicians registered for the course in 1921 and 34 in 1922.

At all times there are from one to a half dozen physicians in attendance in the School as special students. They are permitted to take any of the regular work and any special work for which they are prepared.

GRADUATE COURSES

We reserve the term "graduate student" for such as are registered for advanced degrees. Graduate work in medicine began in 1914. There are usually about 40 graduate students at Minneapolis. They are, of course, making use of the Medical School facilities though registered in the Graduate School. Most of them hold fellowships supported by the University.

LIBRARY

Our medical library has received notable accessions. The use of the reading room has greatly increased. The record of books drawn for outside study is shown in Table 3.

TABLE 3

BOOKS DRAWN FROM MEDICAL LIBRARY

1911-12,	746	1914-15,	3,362	1917-18,	13,987
1912-13,	1,085	1915-16,	6,296	1918-19,	9,684
1913-14,	1,967	1916-17,	10,165	1919-20,	11,358
				1920-21,	10,735

RELATIONS WITH THE UNIVERSITY AS A WHOLE

It has been the policy of this administration to bring the Medical School into close co-operation with the other schools and colleges of the University. We offer courses for students of various types and degrees of advancement, and accommodate these courses to the schedules of the other colleges. We have large classes of such students, and the feeling toward our School is excellent in all parts of the University. These students go out into all walks of life. They understand better what medical science is. They are friends of scientific medicine and of the Medical School.

THE MAYO FOUNDATION

Everyone understands now, I think, that the Mayo Foundation is an endowment for graduate medical education and research; that it belongs to and is a part of the University of Minnesota; and that it is not a separate corporation or institution. The Foundation is administered by the Graduate School, not by the Medical School.

The effect of the Foundation on the Medical School in a direct way will be slight. Indirectly, it should have a stimulating effect. Already the desire to obtain Mayo fellowships for advanced study is manifest among undergraduates and brings students here from distant states.

As a matter of interest I may add that the endowment has been allowed to accumulate added interest. The capital sum amounts now to over $2,000,000.

Beginning with July 1, 1922, the interest will be used as originally planned. It will be used largely for research and research fellowships, particularly under the direction of Drs. Rosenau, Kendall, Mann, and Robertson. No part of it will be used to pay fellows for work in the clinical branches. The fellowships in the clinic might well be called Mayo Clinic fellowships hereafter.

GENERAL CONSIDERATIONS: FUTURE OF THE MEDICAL SCHOOL

Finally, may I present my conception of what a state medical school should be?

First, I conceive the Medical School as consisting of those departments of instruction and research concerned with the medical sciences, both pure and applied. By *medical sciences* I mean those parts of Biology, Chemistry, and Physics which can be employed for the understanding, prevention, diagnosis, alleviation, or cure of human disease. Add psychology, if you will, for full measure, unless you are willing to call psychology a part of biology.

We give the medical parts of these sciences special names, such as *Anatomy, Physiology, Bacteriology* when we are thinking of pure sciences; or we speak of *Internal Medicine, Surgery, Pediatrics,* etc., when considering applied sciences. But really they are all based upon and are parts of Biology, Chemistry, and Physics.

Second, I think of the Medical School as the administrative unit adapted to guide students in those curricula founded chiefly on the medical sciences. It is a mistake to think of the physician as the only professional person who needs knowledge of the medical sciences. But the medical course is the oldest curriculum in the Medical School and the most exacting and thorough one. Next to this is the school of nursing (if you think of it as the nurses' course or curriculum, its educational relations will be more clear). The nurse's curriculum, like the physician's, is founded on Anatomy, Bacteriology, Chemistry, and Physiology. It also includes certain parts of Medicine, Surgery, Pediatrics, and Obstetrics, with emphasis on certain forms of therapeutic procedure. It stresses the care of the patient and the control of his environment. But all these, if you read broadly, are parts of medical science as I have defined it. Therefore, the nursing curriculum should be, and is, in the Medical School. Our Nursing School is worthy of a fuller consideration than I can give it at this time.

Another curriculum involving the medical sciences is that recently laid out for medical technicians. This involves two years in the academic college and two years in medical sciences, and, therefore, in the Medical School. It may lead to a B. S. degree.

We shall have courses in Public Health similarly organized and directed. Quite likely a later development will be a course in medical social service; for this, like the other curricula named, should be founded on medical science, with appropriate added work in sociology and related subjects.

The dental course, though not administered by the Medical School, is also founded on the medical sciences. We make it our policy to cooperate closely with the College of Dentistry.

It will, therefore, be seen that this second conception of the Medical School pictures a big division of the University, administering curricula leading to several different professions, all based upon the medical sciences. This is like the engineering college with its courses leading to several types of engineering; or like the college of agriculture with its courses in Agriculture, in Forestry, in Home Economics.

Lastly, my conception of the Medical School is that of a service organization for the entire University. As such it offers courses to any students, anywhere in the University, who desire training in the medical sciences. It teaches anatomy, physiology and pathology to dental students; bacteriology to home economics; physiology to physical education students; pharmacology to pharmacists. It teaches any of these subjects to students of the literary college or to those of the college of education. It should, and I hope by next year will, offer courses in hygiene to all students in the University.

In general, its courses should be open to any student who has the proper prerequisites, and should be recognized as electives in any curriculum where the medical sciences form an appropriate part of a student's education. Is there any student, indeed, who would not be better prepared for life if he had some knowledge of, let us say, bacteriology and physiology?

In this connection let me add that my conception involves the offering of appropriate elementary courses even by the departments of practical medicine. I hope to have offered by the Department of Pediatrics a course in contagious diseases appropriate to home economics and education students. The Department of Medicine can likewise offer a course in elementary symptomatology and the common diseases. Surgery might offer a first-aid course.

MEDICAL SCIENCE AND THE PUBLIC

The foundation of this conception is the thought that the body of knowledge we call *medical science* is the heritage of all the people, and not of the medical profession alone. The more the people know of what medical science is, and what it can and can not accomplish, the sooner will rational ideas replace current superstitions, and quacks and charlatans be discredited. When medical science is generally known, public health can go forward unhindered, with consequent added efficiency and longevity. Not least should be the growing conception of the Medical School, not as an expensive establishment for the education of doctors, but as a necessary part of education and research for the benefit of all the people.

EXCISION OF ULCER OF THE DUODENUM*

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The immediate and ultimate results of gastrojejunostomy performed for ulcer of the duodenum are very satisfactory. Two considerations are essential to these good results: first, the operation must be decided on after the ulcer has been demonstrated; and, second, the mechanical arrangement of the stomach and intestine and the technic for joining the two must follow the plans made by surgeons with the widest experience.

In view of the fact that there is so much evidence to support the belief that ulcers in the duodenum may be the result of extension of infection from some focus in the abdomen, or more remote point, it is necessary that such co-existing infection should be cared for at the time of the operation on the stomach or very soon afterward. Certain regulations of diet following gastro-enterostomy are undoubtedly essential. Indiscretions soon after the operation have often been followed by a return of the former symptoms, and have seemed to play a part in the formation of secondary ulcers.

Gastro-enterostomy does more than effect symptomatic relief. It has been said by some observers that all ulcers of the duodenum heal after the gastro-enterostomy. I find it difficult to decide just what effect gastro-enterostomy has on the ulcer. However, in our cases in which secondary operations were performed at various times, subsequent to the gastro-enterostomy for ulcer, there was always evidence of the ulcer in the form of scar and induration. Just when the ulcer may be termed healed, I believe, will depend on when all of the ulcerated area has been replaced by scar tissue. Perforation of the ulcer is a common occurrence, and yet, so far as I have been able to learn, such perforation practically never occurs after gastro-enterostomy. I know of only one authentic case (personal communication from Moynihan). This suggests that if the gastro-enterostomy did not effect a definite change in the ulcer itself, perforation would occur more often. On the other hand, it is well known that if an ulcer of the duodenum has caused severe bleeding, a return of the hemorrhage may be looked for in a definite percentage of cases (about 12 per cent) after gastro-enterostomy. The hemorrhage may come several years after the operation; furthermore, it may come when the patient has been completely relieved of his dyspepsia. The phenomenon indicates that the ulcers do not all heal completely as a result of gastro-enterostomy.

Careful macroscopic and microscopic study of the tissues has proved that inflammatory lesions of the duodenum occur in two distant types; one, the true ulcer, and one more distinctly inflammatory, probably better designated duodenitis. We might assume that the duodenitis type of ulcer is the healed true ulcer, but I believe that it is a separate lesion and never has been and never will be a true ulcer. The first type is the true ulcer, and is in every way similar to an ulcer in the stomach. There is definite congestion and stippling of the peritoneal coat, and the induration is usually rather extensive so that the lesion can be palpated and recognized as an ulcer with a crater. The second type is more markedly congested and stippled than the true ulcer; usually there is very little if any induration in the tissues. In many cases the palpation of this lesion does not differ from palpation of the normal duodenum. On excising the area, instead of a crater, as in the first type, the entire surface of the mucous membrane is found to be covered with normal mucosa. The condition might be called a healed ulcer if it were not producing symptoms. The thickness of the ulcerated area of the duodenum is very little, if any, greater than that of the normal wall of the duodenum. If the surface of the mucous membrane is examined closely it may be found to contain one or more pin-point ulcers and scar tissue. Both the submucosa and muscularis are usually infiltrated with round cells, and this infiltration may extend some distance into the tissues of the intestinal wall. Histologically, this ulcer is similar to the submucous ulcer sometimes found in the urinary bladder. Clinically, there seems to be little difference between the two types. The histories in our cases of duodenitis indicate that this type of ulceration is not a stage from which true ulceration later develops. The duration of symptoms averages the same as in cases of true ulcer. The shadow of the deformity of the duodenal cap in the röntgenogram produced by the two forms of ulceration is the same except that the niche which represents the crater of the ulcer, while often seen in the ulcer type, is absent in duodenitis.

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*Presented before the Western Surgical Association, St Louis, December, 1921

The designation of these two types of ulceration of the duodenum has no bearing on the diagnosis or treatment, but is of interest from the pathologic point of view, and may offer some suggestions with regard to etiology. Formerly I believed that hemorrhage was a rare occurrence in cases of duodenitis, but recently I have had reason to believe that very severe hemorrhages may occur in these cases. In the past few months I have seen several patients who had hemorrhages so severe that they were almost exsanguinated, and yet the lesion in the duodenum was in the form of duodenitis rather than of true ulcer. In some of the cases the area of the inflammation extended throughout the entire circumference of the duodenum, and yet there was no demonstrable ulceration of the mucous membrane.

In view of the fact that gastro-enterostomy, when properly selected and performed, has offered such exceedingly good results in the treatment of duodenal ulcer it seems best to continue to use the procedure in most cases. Whether a good result from gastro-enterostomy may be expected before the ulcer has produced obstruction, has been widely discussed. At one time it was thought best to produce an obstruction by pyloric exclusion in cases in which the pylorus or duodenum was not obstructed. It was often said that a gastro-enterostomy would not functionate properly if the pylorus was open. This statement is seldom heard now, and, so far as I know, pyloric occlusion has practically been abandoned as an unnecessary procedure. Undoubtedly, there is a certain amount of true mechanical obstruction, or at least spasmodic obstruction, produced by most ulcers, and I believe that we have over-emphasized the importance of this phenomenon in obtaining good results.

In spite of generally good results from this type of operation there are certain cases in which it seems well to excise the ulcer in preference to making a gastro-enterostomy. It is this group of cases which I shall discuss particularly at this time. While we have performed several different types of plastic operations on the pylorus, in the cases in this group operation was not performed on the pylorus or stomach.

Roeder has recently reported an operation similar to the one I shall describe, although the indications for the operation and the technic are somewhat different. Finsterer reported a series of thirty-five cases of severely bleeding ulcers of the duodenum in which operation was performed while the hemorrhage was severest. Finsterer believes that it is better to remove the ulcer at this stage than to postpone removal until the severe anemia is overcome, as has been the custom recently.

Nowak, assistant in von Eiselberg's Clinic, has reported a series of forty-seven cases of duodenal resection for ulcer of the duodenum. He believes that resection is applicable in the great majority of cases, but says that the indication for the operation should depend on the general condition of the patient and on the proximity of the common and pancreatic ducts. He believes that with good technic the danger and mortality from the operation are scarcely greater than with other indirect methods. This operation is much more radical than the one I have performed.

The excision of the duodenal ulcer or ulcers and the reconstruction of the duodenum are accomplished as simply as possible. The symptoms of which the patient complains are the result of these ulcerations, and to obliterate them it is only necessary to remove the lesion. This is the fundamental principle of the operation; it does not change the physiology of the stomach. If, owing to the lesion in the duodenum, such change has occurred, then the organ should return to normal by the removal of the lesion. The question has been asked, "What will prevent other ulcers from forming?" A better knowledge of the cause of the original ulcer is necessary in order to answer this question. All foci of infection should be cleared up. If the ulcer has formed as a result of infection, the source of trouble will have been eliminated. I am not making a plea for excision of the ulcer; on the contrary, I am convinced that the operation has its limitations. Quite as good results will be obtained in selected cases as can be secured by any form of pyloroplasty or by gastro-enterostomy, and with a little less risk to the patient. The normal anatomic and physiologic relationship of the stomach, duodenum, and jejunum will be preserved.

The excision of ulcer is particularly indicated if the entire ulcer can be excised and the duodenal lumen maintained, and if the entire operation can be performed more easily than gastro-enterostomy. If the ulcer is of the type that bleeds during an attack, excision is preferable. If localized pain is one of the chief symptoms and dyspepsia is slight or absent, I believe it is better to excise the ulcer if it can be done readily. If the gastric acids are not high, and especially if the patient has a tendency to neurasthenia, it is best to excise the ulcer rather than to perform gastro-enterostomy.

Ulcers of the duodenum should not be excised unless the technical steps of the operation can be performed satisfactorily. This will be possible only if the duodenum is mobile or easily mobilized. It is true that, if the duodenal lumen is interfered with, gastrojejunostomy may be made; on the other hand, if it is necessary to make a gastrojejunostomy, it is ordinarily not necessary to remove the duodenal ulcer; therefore the gastrojejunostomy should be performed primarily.

In the operation which I am describing the ulcer is excised without attempting to enlarge the pylorus. We have had satisfactory results from the Finney pyloroplasty and also from the Heinecke-Mikulicz operation, but our present technic is more easily carried out than the others and, we believe, affords better opportunity to remove all of the ulcerated tissue. This operation is based on the belief that the ulcer is the cause of the symptoms and that its removal will be all that is necessary for complete relief.

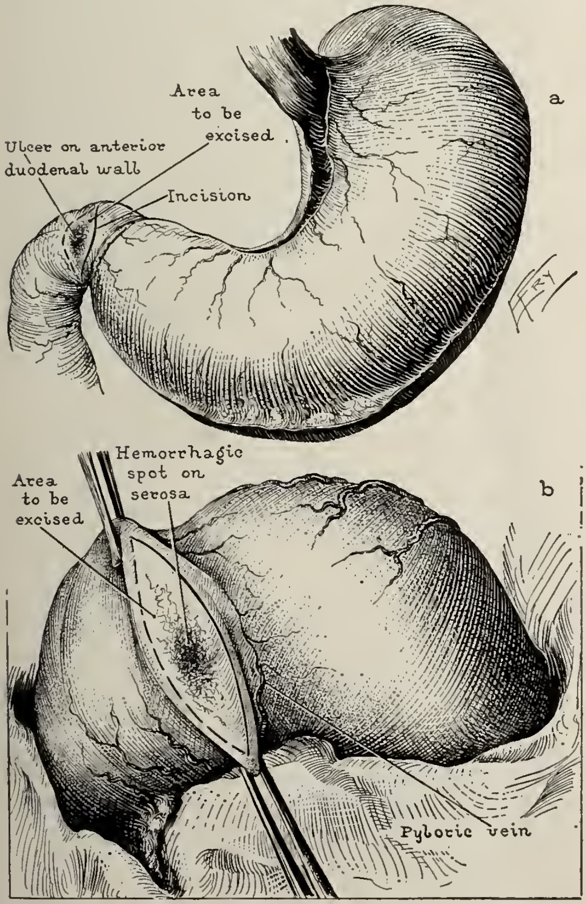

Fig. 1. a. Position of incision in duodenum. b. Duodenum held by stomach clickers to facilitate making of incision.

TECHNIC OF OPERATION

The incision into the duodenum is made transversely on a line parallel with the ring fibers of the pylorus (Fig. 1). The upper transverse incision is usually placed just below the pyloric muscle, and the lower one far enough below the ulcerated area to pass through good tissue. After

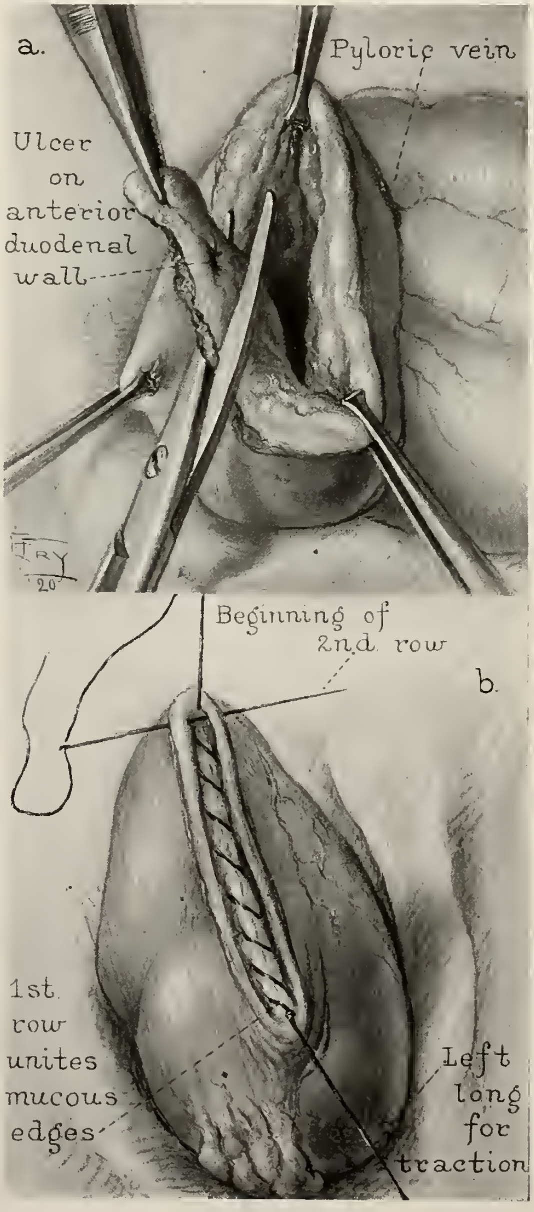

Fig. 2. a. Excising ulcer on anterior duodenal wall. b. Mucous coat sutured with catgut.

the ulcerated area has been removed the entire surface of the mucous membrane of the duodenum and pyloric end of the stomach are exposed for inspection. We have been rather surprised to find multiple ulcers in a large number of cases. Contact ulcers are much more common than we had believed, and ulcers on the posterior wall some distance from the pylorus have been unexpectedly encountered in several instances. In some of the cases of multiple ulcers it has seemed best to cauterize and suture over the deep ulcers (Figs. 2 and 3), and finish with gastro-enterostomy. In most cases, however, we are able to destroy all of the ulcers and finish with a good duodenum. After suturing over the deep ulcers the opening on the anterior surface is closed by three layers of sutures (Fig. 4), thus the pyloric end of the stomach is sutured to the anterior surface of the duodenum, which almost amounts to a gastroduodenostomy. The entire duodenal cap is destroyed, so that a röntgenogram made after the operation reveals much the same deformity as that produced by the ulcer. This point must be kept in mind in making post-operative Röntgen-ray examinations.

RESULTS OF OPERATION

The operation has been performed in 141 cases in the Mayo Clinic with satisfactory results. The immediate results are very gratifying, and the convalescence is easier than after almost any

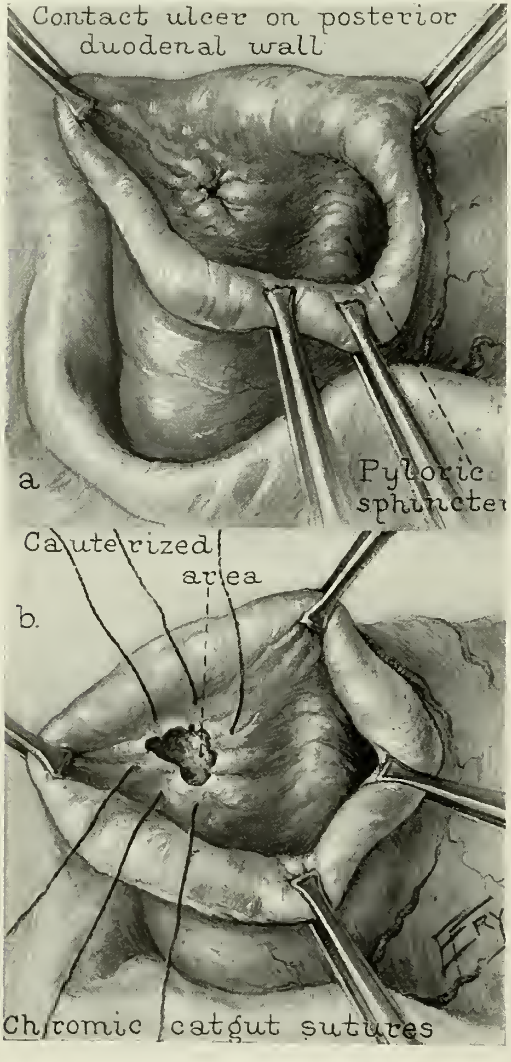

Fig. 3. a. Duodenum held open to expose contact ulcer. b. Cauterized area on posterior duodenal wall ready to be closed.

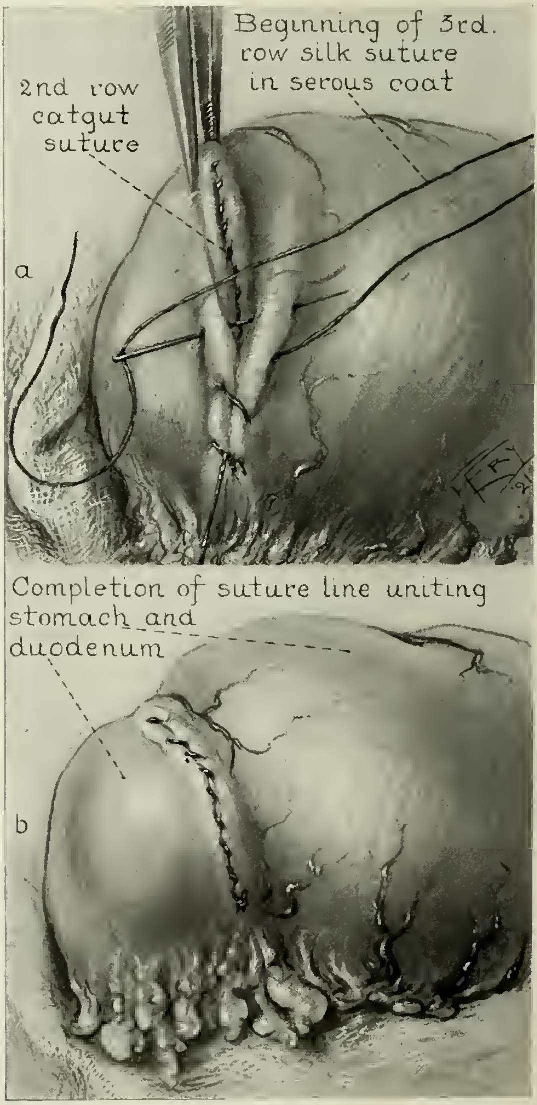
Beginning of 3rd. row silk suture in serous coat
2nd row catgut suture
a
FRY
Completion of suture line uniting stomach and duodenum
b

Fig. 4. a. Beginning of last suture. b. Suture completed.

other operation on the stomach. There is no vomiting, and apparently the stomach empties itself at once. In one or two cases there was some evidence of oozing, as shown by the tarry stools. This, however, was of no consequence. There was one death in the series; an elderly woman developed pneumonia and died on the tenth day.

In most of the cases the functional result was very good. Gastric analyses were made a week or ten days after the operation in practically all of the cases, and repeated examinations were made in some. Following gastro-enterostomy, of course, the content of the stomach was not acid, and after excision of the ulcer there was a marked reduction in acid, although it was never entirely absent. In a few cases the acidity was not materially reduced. In most cases the acids were normal a few weeks after the operation.

In two cases I made gastro-enterostomies secondary to the excision of the ulcer. One of the patients had a new ulceration with a return of symptoms two years after the first operation; and one, a rather nervous girl, did not obtain complete relief. In this case I was unable to determine that there was any ulceration, and the lumen of the duodenum was apparently normal. In one case a gastro-enterostomy was performed elsewhere some months later, because the gastric acids had remained too high after the excision of the ulcer, and relief of symptoms was incomplete. The acids still remain high after the gastro-enterostomy.* An average of analyses of gastric contents in twenty-five cases showed before operation total acids 54 and free hydrochloric acid 41; eight days after operation it was total acids 34 and free hydrochloric acid 19. During this time these patients were on hospital diet.

COMMENT

I performed this operation a number of years ago in cases in which gastro-enterostomy had been unsatisfactory because of the formation of a jejunal ulcer. We soon learned that the best procedure in the jejunal ulcer cases is to undo the gastro-enterostomy and excise the original ulcer. The operation was so satisfactory in these cases that we employed it in others in which the indication seemed suitable. I am convinced that the excision of duodenal ulcer will never become general or take the place of gastro-enterostomy.

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*I am indebted to Dr. E. L. Tuohy, of Duluth, for the follow-up notes in this case.

CEREBELLAR CYST*

By Arthur N. Collins, A.B., M.D., F.A.C.S.

DULUTH, MINNESOTA

Tumors in the cerebellar region are reputed to be attended by the highest surgical mortality of any beneath the cranium, namely, 45 per cent. The parietal region comes next with a mortality of 41 per cent. According to Sir Victor Horsley the immediate operative mortality is 9 per cent in cases diagnosed and the tumor found. In cases operated on and no tumor found, he places the immediate operative mortality at 37 per cent. Of the four cerebellar cyst cases reported by Taylor in his series of over sixty brain tumor cases, one patient was alive and well at the end of five and one-half years, and one patient died in five days as a direct result of operation; the other two are not recorded in detail.

The case to be recorded in this communication came first to the notice of Dr. John Winter, of Duluth, on April 22, 1913. Dr. Winter gave the following history and clinical notations:

> The patient was not quite thirteen years of age, a well-developed and proportioned boy, bearing no signs of stigma except for the following history:
>
> About three weeks before this history begins he was sent home from school on account of not seeing well. He was not able to see the blackboard lessons. A few weeks preceding this his mother noticed that his actions were "peculiar" and that he did not seem so bright and active as was his habit. About April 10 he discovered he could see more distinctly to read with his father's glasses, and he was therefore brought for an examination of his eyes.
>
> Examination: R.E.V., 3/10; L.E.V., 3/10, plus; with a plus 4 diopter lens the vision could be improved to 6/10 in each eye; nystagmus, well marked to the right. The eyes themselves are rather prominent, almost ex-

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*Presented at the fourth annual meeting of the Association of Resident and Ex-Resident Physicians of the Mayo Clinic, Rochester, Minn., May 29, 1922.

ophthalmic in appearance, which led one physician who had previously examined the eyes to make a diagnosis of exophthalmic goiter. The pupils were dilated to 5 mm., but reacted to light and accommodation. The cornea, lens, and media were clear.

Fundus examination (both eyes): the outlines of the optic disc were hazy and indistinct; the nerve head, swollen, probably about 1 mm.; blood-vessels, somewhat dilated and tortuous.

Ears: Right, conversational and whispered voice not heard; watch not heard; Rinne test, tuning-fork not heard either by air or bone conduction. Weber test referred to left ear. Membrana tympani normal in appearance. Left, conversational voice readily heard at 20 feet; whispered voice at 4 feet; watch at 5 inches. Rinne test, negative; low fork not heard; high fork somewhat reduced. Membrana tympani, normal in appearance.

Complaint: He complained of not seeing well and of headache; the headache was more or less constant, but at times was of great severity. He was nauseated a great deal of the time and occasionally vomited. The mother stated she had noticed an unsteadiness in his gait and at times a tendency to fall, and also had noticed that he was gradually becoming hard of hearing.

In addition to the above Dr. E. L. Tuohy made the following clinical memoranda: (1) ataxia of the cerebellar type; (2) dizziness; (3) tinnitus aurium; (4) loss of the corneal reflexes on the right side; (5) exaggeration of the reflexes and a complete Babinsky; (6) a loss of strength (paresis) of the right arm; (7) severe occipital headache. With the absence of the last-named symptom, the above symptom-complex suggests a right-sided acoustic tumor on the 8th nerve.

The following supplementary notes were subsequently added by Dr. Winter:

The symptomatology of lesions of the acoustic nerve and of its central course produced by tumors of the brain are: (1) subjective noises, (2) dizziness, (3) nystagmus, (4) embarrassment of hearing in a varying degree up to deafness, in consequence of which the subjective noises generally disappear. In a majority of the cases the disturbance of hearing is unilateral. According to Barany (quoted by Politzer) in cases of tumor of the base of the brain in the post-cranial fossa an (a) impaired irritability of the vestibular apparatus, associated with severe (b) dizziness (by injection of cold water into the external meatus), and (c) nystagmus to the diseased side, arise early in the disease,—symptoms which considerably aid the diagnosis of tumors at the base of the brain, if at the same time the (d) membrana tympani has a normal appearance. All tumors of the post-cranial fossa show the early development of choked disc.

The disturbances of hearing may be attributed with greater certainty to a tumor of the brain if they are combined with signs of paralysis of other nerves, e. g., bilateral weakness of vision; paresis of the extremities along with embarrassment of hearing of a high degree. When the symptoms of brain tumor are not very pronounced it must be especially noticed whether a slight facial paresis and anesthesia of the skin on the affected side of the head are present.

After careful consideration of all the manifestations in the boy's case he was referred for operation on April 30, 1913.

Operation in a case of this kind has for its object at least three distinct sub-objects: (1) relief of the distressing symptoms,—pain, ocular and auditory manifestations, and somatic neurological symptoms; (2) to remove the tumor, if possible, when removable; (3) to accomplish the above with the least possible destruction of brain substance and leave the individual in as good condition as the seriousness of the operation and its technical difficulties will permit. To accomplish these things it was considered advisable, owing to the boy's physical condition, to operate in two stages.

At the first operation an opening in the cranium was made in the right cerebellar region, the wound closed, and the patient returned to his bed. At the secondary operation the wound was re-opened, and immediately the cerebellum herniated through the opening due to the intracranial pressure. In view of a suspected acoustic tumor, the region toward the right ear was explored. Finding no tumor in this region, the exploration was continued downward toward the medulla and upward toward the lateral sinuses and across toward the opposite cerebellar region. It was in the latter region that a cyst was discovered presenting across the midline, pressing the cerebellum upward toward the vertex to the opposite side, and itself extending around as far as the left mastoid region. The sac was thin-walled and contained three ounces or more of fluid under great pressure. The wall of the cyst was so thin that it could not be dissected away from the surrounding structure without rupturing. With the rupture of the sac the fluid was mopped up and the cavity rendered dry by gentle sponging. The cyst wall was then separated where it could be caught and peeled off, the cavity was drained, and the wound closed. Iodoform gauze was applied externally around the drain. The patient was returned to bed with a pulse of 130, and he made a good recovery from the ether and for a few days was very comfortable, the wound discharging copiously fluid of the same consistency as was found in the cyst.

About the end of the second week, the drain having been removed in the meantime, and following a day or two during which there had been less discharge from the wound, his temperature suddenly shot up to 102°, and a few hours later rose to 106° per rectum. He had a chill, vomited, and complained of pain in the back of his head. On the suspicion of iodoform poisoning from absorption from the dressings, dry sterile gauze was substituted, and a rubber wick was introduced into the wound, but there was very little (merely a few drops) fluid escaped. He was watched closely for signs of iodoform poisoning, and while some of his symptoms, such as drowsiness and high temperature and slight delirium, were compatible with that condition, they were explainable without it, and on the other hand positive signs in the urine and in the vomitus were absent. He was drowsy and for twenty-four hours anything given by way of the stomach was rejected by vomiting. This condition, in a somewhat lessened degree, continued for several days, the wound in the meantime remaining perfectly clean and pure. No signs of meningitis or other infection presented. Cultures taken from the discharging fluid were negative. The temperature continued to run from 103° to 105° per rectum. He began, however, to eat heartily. At the end of about twelve days' duration of this febrile condition (during which the temperature only once or twice came down to 100°) the temperature suddenly descended to practically normal, and he was well enough to be out on the balcony. His appetite continued good. Cultures again taken from the fluid showed no growth.

Following this, about four days to a week apart, such spells, in a much milder degree, occurred and after discharge of fluid from the wound the temperature fell, but the severe constitutional manifestations were absent. His surface temperature at no time seemed commensurate with the thermometer readings. The suspicion of iodoform poisoning was, therefore, abandoned, and the high temperature accredited o pressure on the thermal centers due to accumulation of fluid from time to time. He suffered a marked loss of weight during his protracted illness.

End result: The boy was taken to his home, where he lived four or five weeks after leaving the hospital. He could not stand at all after the operation. At home he sat in a rocker part of the time. The movements of his limbs, especially of his right hand, were ataxic. He had very slow control of all his muscles. He had incontinence of feces much of the time and also had an occasional vomiting spell. He complained of no pain except when the dressings became dry and adhered to the edge of the wound, through which there was considerable herniation of the brain substance. While the distressing symptoms incident to the intracranial pressure were relieved for the most part, he continued to fail. His appetite failed; he was mentally dull; he took no initiative in conversation, though he would readily answer questions and occasionally, until the last few days of his life, would laugh at an amusing incident. The failure was progressive, and he died July 15, 1913. No autopsy was permitted.

In the light of the operative revelations in this case the neurological findings are interesting. The headache, nausea, choked disc, and exophthalmus are compatible with the generalized intracranial pressure. The nystagmus was to the right; the cyst was found on the left. With the cyst located on the left the pressure was transferred across to the right side, rendering the right ear functionless. The function of the left ear was surprisingly good, considering the location of the cyst. Neurological exactness in localization is constantly fraught with such reversing conditions as the above, making the task very difficult. Willy Myer reports, briefly, a case in which the focal symptoms pointed to the cerebellar region, but at operation no tumor was found. The patient died, and at autopsy a large cyst was found in the left large hemisphere involving temporal and occipital lobes. Cosack reports in detail a child, aged 4 when first seen, and operated on at 6 on account of an erosion of the right parietal cranium, size 12 by 3 cm. He found beneath the defect a cyst containing 50 c.c. of fluid. The child died suddenly during operation. He believes these cysts to be of congenital origin.

Occurrence: As to the occurrence of cerebellar cysts in the young, a diligent search of the literature, made for the writer at the Boston Medical Library in 1914, resulted in the accumulation of twenty-one operated cases of cyst of the cerebellum in children up to sixteen years of age.

A tabulation of these cases follows:

Year	Physician	Sex	Age	Duration	Result
1895	Hermanides	M	13	2 yrs.	Recovery
1899	Guthrie and Collier	M	9	not given	R
1901	Bergmann	F	12	4 yrs.	R
1903	Hudson	F	9½	1 yr.	R
1904	Steward and Holmes	M	7	3 wks.	R
		M	15	4 mos.	R
		F	14	3½ mos.	R
1906	Scholz	M	12	2 yrs.	R
		M	15	2 yrs.	R
1907	Auerbach and Grossmann	M	16	1 yr.	R
1908	Sinkler	M	10	14 mos.	R
1908	Tietze	F	16	not given	R
1909	Borchardt	F	10	1½ yrs.	R
1909	Cushing		3	1 yr.	Death
1909	Dahlgren	F	14	1 yr.	R
1909	Lichtheim	M	14	2 yrs.	R
1909	Lichtheim	M	12	2 yrs.	R
1912	Barany	M	11	10 mos.	R
1912	Beyer	M	12	2½ yrs.	R
1913	Creite	F	12	not given	R
1913	Moschowitz	M	15	3 mos.	R

Totals: males, 13; females, 7; not stated, 1.
Duration: 1 year or less, 9 cases
2 years or less, 16 cases
2 years or over, 2 cases
Not given, 3 cases
Ages in years 0 — 6......1 case
6 — 11......5 cases
11 — 16.....15 cases

From these tabulated cases it will be observed that there were seven females and thirteen, or nearly twice as many, males, with one case not stated. It will be observed that the incidence increases as the age advances. There was one case under five years of age, five cases from five to ten years of age, and fifteen cases, or three times as many, between the ages of ten and sixteen.

The remarkable thing about this series of cases is that all the patients recovered except one, the youngest of the series, a case of Dr. Cushing's. The patient died suddenly a few hours after operation,—probably a thymus death. Autopsy revealed the characteristic glandular enlargements. This was a case of cystic glioma. Judging from the repeated recoveries in this series of cases, either operation on a cerebellar cyst in a child is an operation with a very low mortality rate or nothing but favorable cases have been reported. Possibly all are "operative" recoveries.

The proportion of cysts to other tumors of the cerebellar region may be realized when one reads that Frazier, in 1905, collected 116 cases of cerebellar tumor, and of this number, 28 cases were in children under seventeen years of age, and of this number but 4 were cases of cysts.

Frequency of cysts of the cerebellum: Statistics of Starr, quoted by Williamson, show a proportion of 9 cysts to 128 tumors, one in 14, or 6.5 per cent. Records published by Frazier of operations on the cerebellum, in cases in which tumor had been diagnosed, give a proportion of 9 cysts to 97 tumors, or about one in eleven, or 8.4 per cent. In 30 operations by Cushing, in cases presenting the symptoms of cerebellar tumor, the lesion was one cyst in four. In 22 cases published by Stewart and Holmes there were 3 of cerebellar cyst and 19 of tumor, 1 cyst to 6 tumors, or 13.6 per cent. A fair estimate is that in at least 5 per cent, or 1 in 20 of the cases in which the symptoms are those of cerebellar tumor, the actual lesion is a cyst.

In conclusion, I am constrained to grasp the encouraging note sounded by Frazier in the closing paragraph of his recent article on "Neurologic Surgery": "There have been notable achievements on the one hand and sorry failures on the other. For the coming generation, there are many fields still open for investigation, many problems still unsolved. The shortcomings and disappointments should stimulate, rather than discourage. That there is a wide enough scope for investigative pursuits to justify the recognition of neurosurgery as a specialty no one will question. Certain it is that the promise of the future lies in the hands of those who will give it their undivided attention."

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THE NON-REMOVABLE LINK IN BILIARY TRACT DISEASE*

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That surgery of the gall-bladder is not an absolute success, the surgeon himself will admit. Compiled statistics in the larger clinics show that 15 per cent of operative cases are failures. In addition to these non-symptomatic reliefs or operative failures, numerous investigators have shown that cholecystectomy is not without its effects on the remainder of the digestive machine. Hohlweg, in a study of 42 patients following cholecystectomy, found a subacidity in 83.3 per cent. He then produced the same phenomena in dogs. In another group of forty-five cases with occlusion of the cystic duct or considerable shrinkage of the gall-bladder there were 84 per cent achylias and 14 per cent below normal free acidities.

I have very briefly reviewed these well-known facts merely as an introduction to a probable interpretation of the reasons for these failures, and, with this interpretation, the outline of a rational non-surgical method of treatment, which, however, is not deemed a panacea for all biliary tract disease, but which seems to have gained a definite place in conjunction with strictly surgical procedures. The strength of this position seems almost impregnable when one carefully studies the normal working mechanism of the liver and its excretory bile tracts.

Surgery has progressed in definite periods of cycles. We all know the story from the days of antiseptic surgery to the present period of asepsis. In much the same manner surgery has almost exhausted its studies of anatomy and pathology. That is to say the anatomical structure and the end product of destruction or disease (pathology) no longer baffle us. We now realize that true progress in scientific treatment must revert to a study of physiology, a clear conception of the normal working mechanism; and from that center we now aim to view the whys and wherefores of the perversion, the reasons why human physiological mechanisms become worn out, clogged, or otherwise deranged.

Is it not strange that in the consideration of diseases of the liver and biliary passages but little attention has been paid to normal liver histology and physiology, with the possible interference, with such, by various types of chronic low grade infection? We have been content to consider liver disease as indicating some vague or fancied disturbance in metabolism, and to consider symptomatic disturbance of the gall-bladder as a disease unto itself, and not as circumscribed, acute, or chronic pathological processes, representing only a part of an extensive physiological derangement, produced by the thing we vaguely call disease. Most of our text-book knowledge on diagnosis and treatment of liver and bile tract disease is based on this limited, narrow, and early pathological conception. With the exception of studies on the cardiovascular liver derangements, the cirrhosis, and malignancy, there are few observations in the literature regarding the histopathologic pictures associated with chronic low-type infection of the liver and its excretory passages. It is true, there is much pathology on record dealing with the gall-bladder, but little or no clinical pathological studies on the associated bile ducts and liver.

Therefore, at this moment, I wish to digress with a brief study of the histologic stucture of the liver, with its corresponding physiologic mechanism, and, from this as a basis, attempt to show the logical therapeutic procedure.

The unit of liver structure is the lobule. This lobule is a minute, self-contained liver. In its substance, glycogen storage is carried on, and by its substance bile is manufactured for excretion. Its walls are the limiting membranes of minute blood vessels, lymph channels, and bile ducts. Within the lobule substance there is a free interchange of blood, lymph, and bile. The multiplication of this unit and their collections, constitute the liver and its excretory mechanism. Consequently, in disease of the liver many ailments are primarily lobular. Harmful substances which are blood or lymph stream borne, come first into contact with the lobule; and damage to the lobule, multiplied many times, gives us liver disease. In close association with every lobule occur strands of non-striated muscle and fine terminal nerve dendrites. These nerve endings are in close relationship to the strands of non-striated muscle, which form the walls of the small bile capillaries. As the size of the liver lobe and the ducts increases, on account of fusion of lobules, non-striated muscle bundles and nerve fibers assume greater size, until, as the bile ducts leave the liver substance to form a connecting tube between the liver and the intestine, these muscle bundles and nerve fibers assume a recognizable part of the efferent bile passages. In the wall of the gall-bladder and common duct is this joining of muscle and nerve pronounced. The sphincter of Oddi, controlling the point of passage of bile into the intestine, is a localized collection of these muscle and nerve fibers which originate in such a small way at the liver lobule.

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*Presented at the staff meeting of Swedish Hospital, Minneapolis, Minn.

It is thus seen that liver structure and liver function are closely related, and consequently under normal circumstances the effects of physiological stimuli, such as are grossly demonstrable in the gall-bladder, the bile ducts, and Oddi's sphincter, are simultaneously being exercised within the liver substance at the origin of its excretory mechanism, the liver lobule.

It has been known for a long time that the bile ducts, including the gall-bladder, are innervated by a set of nerve fibers comparable in their action to the vasoconstrictor and vasodilator fibers of the blood vessels. In 1893 Doyen began a series of experiments on stimulation of the cut ends of the splanchnic and vagus nerves. His conclusions led to the belief that there was a definite interrelationship between the bile passages, the gall-bladder, and the sphincter of Oddi.

A further study and elaboration of this phenomenon of crossed innervation by Meltzer, while working on magnesium compounds, paved the way to the practical application of direct duodenal stimulation as an excitor of this normal liver mechanism, which has its origin in the microscopic beginnings of the liver lobule.

This, briefly, is the now well-known clinical fact that 25 per cent magnesium sulphate solution douched directly on the duodenal mucosa, and then removed, before there occurred opportunity for absorption, toxic central action or catharsis, will produce a relaxation of the sphincter of Oddi with a coincident contraction of the gall-bladder, ducts, and biliary passages. This, then, brings us up to the clinical application of a procedure which seems to be based upon the soundest ground-work of histological and physiological fact. I wish to record my personal experience with a series of 1,000 biliary tract drainages and direct duodenal therapeutic application of various medicinal substances. I do not wish to quibble with, nor deny the value of, direct surgical removal of an accumulation of stones due to infection or the removal of a definitely destroyed gall-bladder, but, as in malignancy, where removal of the tumor itself when far-reaching metastases have occurred, is only a palliative measure, so in biliary tract disease the removal of a few stones or a definitely destroyed gall-bladder is but one step in the eradication of a process which had its beginning in an acute or a low grade infection in the upper biliary tract. This upper biliary tract is then the "non-removable portion of the entire biliary system." Have we now made any advances in scientific knowledge which can be used, either pre-operatively, post-operatively, or purely non-surgically, which will enable us to reach indirectly and aid eradication of infection, help drainage, or temporarily give nature a boost in its effort to carry on normal physiological efforts? I believe we are pointing in that direction, and I wish now to present the methods employed with a summary of results obtained. On account of lack of time I shall omit the diagnostic procedures except to emphasize the point that the work of Einhorn, Jutte, Lyons, Rehfuss, Aaron, and Smithies is slowly giving us massive evidence of the frequency of active infection in the bile passages, which cholecystectomy alone fails to completely eradicate.

METHOD OF TREATMENT

Usually in the morning following a 12-hour fast the patient reports without breakfast. The duodenal tube is swallowed, and the patient is placed at ease in the right sinus position.

With the tip of the duodenal tube still in the stomach I usually wash the stomach clean with warm water, followed by a rinsing of warm dilute Lavoris solution. Epicol, liquor antisepticus, or any mild alkaline solution can be used. As soon as the tube enters the duodenum, I gently wash out the duodenum with a fairly warm solution of sod. bicarb. Following this I slowly inject about 30 c.c. of a warm 25 per cent mag. sulph. solution. This solution is allowed to remain in the duodenum about two to three minutes, and is then slowly withdrawn by means of the glass syringe. The tube is then fastened by means of a string to the patient's ear; and duodenal and bile tract drainage is allowed to proceed.

In normal subjects there results a characteristic sequence of events. First there flows from

5 to 10 c.c. of thin light golden-yellow bile, which, as quantitative and cytological examination shows, evidently comes from the common bile duct. This is known as "A" bile. Following this with a little gentle suction we are able to obtain from one to two ounces of thick, syrupy bile of a brownish color. Cytologically and considering its quantity and also from the observation that after cholecystectomy this sudden flow of a darker bile is not secured, it is evident that this bile comes from the gall-bladder. This is known as "B" bile. As this flow ceases and as careful weak suction is again instituted there follows a slow intermittent flow of a thin, clear golden-yellow bile, which cytologically can be shown to be hepatic duct and freshly secreted liver bile. This is known as "C" bile. This bile is allowed to drain for a varying period of time, following which, depending upon the microscopic and bacteriological study of the case involved, I institute one of the following procedures: I dissolve 30 grains of sodium salicylate, 30 grains of sodium sulphate, and a dram of sodium bicarb. in 4 to 8 ounces of fairly hot water. This I place in a so-called Murphy drip apparatus, and allow it slowly to drip into the duodenum. By the same method I instil solutions of urotropin, sodium sulphate, phosphate, bicarbonate, and fresh solutions of argyrol. The relation of this procedure is obvious. The duodenal tube becomes to the upper intestinal tract what the colonic irrigation is to the colon. In addition to the known soothing value of argyrol we have the combined mechanical cleansing action of a large amount of solution directly applied, together with the important heat stimulation to the lymphatic and blood circulation, which this local hot application produces.

CLASSES OF CASES THUS TREATED

1. Gall tract stasis with low grade indolent infection not complicated by gross mechanical defects, calculi, or neoplasm.

2. Following operative procedures on the biliary tract when malfunction still remains and no further surgery is possible.

3. Instances of intestinal stasis in which dyspepsia of the gall tract and liver type complicates; frequently recurrent attacks of so-called "mucous colitis."

4. Gall tract and liver stasis and infection with diabetes, exophthalmic goiter or pancreatitis where operative interference is not possible or can be performed to but a limited extent.

5. Gall tract stasis in the cirrhoses.

6. Gall tract stasis, dysfunction, or infection in the severe anemias, pernicious, hemolytic, or chlorotic.

7. Hepatitis with duct malfunction of toxic origin, ptomain poisoning, lead, or phosphorus poisoning or arsenical poisoning.

8. Acute choledochitis, cholecystitis, or hepatitis in association with acute infections.

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AUGUST 1, 1922

THE EXTENSION OF CREDIT

At times the question must arise in every doctor's mind as to whether he is going to get anything out of the case which he is asked to take care of; and it involves a good deal of speculation and effort on his part to suppress his professional ideas and to exercise his business ideas. As a rule, the average physician succumbs to professionalism, and forgets too much about commercialism. The result is that we hear of the enormous business done by Dr. So-and-so, when, as a matter of fact, if an expert could get at his books he would find that the accounts were charged with tip-top fees, but he would also find, a year or so later, that very many of the accounts were uncollectable. Some men go on the theory that the amount of business they do, or have on their books, is their earnings for a month or for a year, and doubtless there are few, very few, who have business acumen that carries them on from their professional desires to their financial responsibilities. There are a few men in the cities, and in the country, who do business on a business basis, and who employ business men to help them out. They employ expert bookkeepers, expert credit men, and they have various devices for the collection of their accounts, good and bad,—mostly bad. In the end they are jumped on, criticized, and abused for endeavoring to collect what is justly due them and out of the goodness of their hearts some of them do not press their debtors closely enough. This is quite a serious problem in hospital business. A patient is brought into the hospital sick, is promptly put to bed by the nurse or other person in charge, and promptly seen by the attending physician, but not promptly looked up as to his financial responsibility unless the physician belongs to a credit association where such information is supplied. The result, sometimes, is that the patient stays for an indefinite period,—a few days, a few weeks, or many months. He pays little and expects a great deal. Finally, at the windup, the bill has become too large to be settled promptly. Then the question arises, How can the hospital and the doctor adjust their fees? A large number of them are adjusted by the patient in that the patient does not pay. He evades, with all possible excuses, any obligations. He, or his family, even go so far as to deny their obligations, though the hospital has in its possession letters which have been written by responsible members of the family making promise of payment, and, later, promising to pay or giving a note for the amount and then denying the whole obligation and defying the doctor to collect his bill. If the doctor pushes the matter too hard, the reply is liable to be a suit for malpractice.

On the whole it is best to follow the experience of a business man: to have a definite understanding at the start about what financial plans are to be made, and to insist upon a definite payment to cover the first one or two weeks; to arrange with a responsible individual for the fee expected in a surgical operation and, if possible, to have the agreement put in writing. Even then, in many instances, the extension of credit goes on. From the viewpoint of the average individual, life is cheap, but they will fight like demons for the preservation of their property rights, and they will pay an attorney a good fee, which would satisfy the average doctor, but kick at the doctor for sending a moderate bill. Unfortunately, in spite of the many methods which are used by the collectors, the patient or the individual who assumes responsibility of the financial end of the transaction has nothing with which to back up his promises. Both he and the patient put up a false standard of expectancy. They almost make the doctor feel that he is a particularly favored man to have such people for patients. As in the old Mormon saying, "They kick you downstairs with such infinite grace, you might think they were handing you up." This, of course, is after the treatment has been consummated and the operation performed, when the time for the payment of the bill has arrived.

What are we going to do about it,—be hard and cruel, turn a sick woman out who needs attention, decline to take care of her even if she is admitted to a hospital, harden our hearts, and refuse to accept the responsibility unless paid for it? Perhaps this is one reason why clinics are organized, so that the physician can throw the responsibility of the financial end of the patient onto the business end of the office, where the books of all the men who have joined either a clinic or an association can be kept in one office, and, irrespective of the condition of the patient, the business man looks after the credit side of the deal. This sort of thing looks good. Does it always work out? We hear of clinics which do a fabulous amount of business during a year, but we know nothing about the percentage of their collections. No matter how high their standards or how well equipped they are, they must inevitably lose large sums of money. The writer is debating as to how he will take his stand when the next new case comes in, but he is always reminded of an old friend of his, who said that when he saw a patient who was rather poorly clad and presented the appearance of poverty, he demanded a very moderate fee only to have the patient pull out a roll of bills sufficient to choke Jonah's whale; and he felt equally disheartened when the other man, well dressed, spick-span, and clean came in, and, thinking him well to do, charged a fair fee, to find the poor cuss was only superficial in appearance,—he had only a dollar.

Sizing up and running the financial end of a doctor's business should be left with a man who is trained for it; but he should remember that when the patient is forced to pay his just bills he has far more respect for the business-like doctor than for the one who shows him too great leniency.

NARCOTIC TRICKS

It is quite evident that there are many addicts parading our streets and buying narcotics from any source where purchasable, while their cunning and daring, if applied to a good purpose, would carry them very far in their daily toil. But, like the lilies of the field, they toil not, neither do they spin,—except to spin around in their efforts to get narcotics and to spin away from the arresting officer. They are difficult to catch, partly because their minds are keen and alert from their habits and partly because they are criminally instinctive in their efforts to evade responsibilities and arrest. Someone is importing and selling narcotics, but every once in a while the addict runs up against an unsurmountable wall, financially, and he either goes out for his narcotic by robbery or murder, and doubtless many of the robberies and holdups and things of that sort are participated in by many of our narcotic fiends,—some of them poor, nervous, and helpless individuals, born wrong, started wrong, and who leave the path of rectitude early in life simply to join an army of people who are equally deficient in their mentality.

Then, too, the revenue officer who is looking after the narcotic violators, we presume, doubtless uses many of these stool pigeons to attain some of his own brilliancy in arrests, and this editorial is simply a warning to hospitals, physicians, and internes against the man who presents himself and asks piteously, or demands, that he be given a "shot" in the arm, for it is quite possible that one of a pair may be a revenue officer while the other is the subject, a dope fiend, who is ready to participate in anything that is sensational, spectacular, or that will pay him enough to enable him to satisfy himself as a fiend.

It seems that some years ago down in Texas a dope fiend applied to a sanatorium for a hypodermic. The nurse, in order to show unusual intelligence (?), gave the subject a hypodermic injection of apomorphine, and a revenue officer made an arrest on the spot, for apomorphine comes under the head of narcotics, just as morphine does. This is a despicable method of annoying reputable institutions, but, fortunately, the average institution is quite well aware of such practices and refuses to give a hypodermic of any kind unless authorized by a reputable physician.

A delicate point, too, comes up as to whether a resident physician, either employed or owning a hospital, would be justified in giving one of these addicts an heroic dose of apomorphine or any other drug that belongs to the narcotic order. There is a dangerous situation here that must be skillfully avoided, and all addicts who apply at private or public hospitals for an injection should be summarily and promptly denied drugs or entrance into the hospital, unless they are brought by a qualified physician with the understanding that they are to be benefited by hospital care and treatment.

Then, too, many of these addicts prowl around doctors' offices in order to investigate supplies, and perhaps to learn where narcotics are kept, in order that they may come back later and by thievery take what they want. The narcotic situation is bad enough all over the country, and the restrictions of the Harrison Act do not seem to be sufficient to prevent exploitation of the drug by peddlers. It is to be hoped that the efforts of Representative Lester D. Volk, who, by the way, is a physician, will be helpful in the enforcement of the Harrison Act. The sale of narcotics, just as the sale of liquor, will go on illegally and to the detriment of the consumer.

DR. HUGH N. McDONALD

Dr. Hugh N. McDonald, who died in Minneapolis on July 15, 1922, was nearly fifty-nine years old, and had been sick at his home for several months. He was born in Glengarry, Ontario, in 1863, and was graduated from McGill University, in Montreal, in 1889. He came to Minneapolis the same year and has practiced his profession here ever since.

Dr. McDonald was a typical Scotchman, one of the fine old school, and a man of high attainments with very charming personal manners. He was very much liked by his friends and patients because of his gentleness and his painstaking care with his patients. He never neglected anyone, and if anyone was sacrificed it was himself, for he worked and studied and looked after his sick people with the solicitude of a parent. He was a member of many medical societies, in particular of the State Medical Association and the Hennepin County Medical Society. He was also a member of the Scottish Rite bodies, and a clubman as far as is possible for a doctor who is busy and who has the home instincts.

Dr. McDonald had long been a warm personal friend of the editor, who realizes, as do many other physicians who knew Dr. McDonald during his lifetime in Minneapolis, that he was one of the few of our real physicians. He had not been well for a good many years, but between 1905 and up to the first of January, 1922, he was in active practice. He took but little time away from his work, except when he was overcome by fatigue. He was the sort of man we all miss, and he was an example to the older, as well as to the younger, men in his attention to details, and his keen analysis of situations, not to say of symptoms. He had a grasp on the whole individual, as well as on his peculiar ailment. He will be long remembered as a man of medical culture and medical interest and one who desired to give the best of himself to his work. He spent some time in the clinics in various parts of the country improving his knowledge of disease, and he knew many of the well-known teachers in the Eastern and Western universities.

He evidently realized that this illness was unconquerable, and he himself decided that he had an inefficiency of the suprarenal glands. And, having gone through so many battles with himself, he felt a reluctance to overcome what proved an irrecoverable condition. But during all his illness he was cheerful and considerate of others. He suffered intensely, but he made little of that, and consequently his effort to get well was not intensive. This is probably a repetition of what goes on in many medical men's minds,—as to whether it pays to make a big battle against an insurmountable army of medical facts. Perhaps it is an excusable weakness, because he takes into consideration not only the suffering he himself may go through, but the burden and suffering it must put upon his family and friends.

We who knew Dr. McDonald feel that he is at rest and glad to be rid of this world's cares and responsibilities. But we shall miss him in our daily life, and shall be reminded of him by our association with others.

BOOK NOTICES

A Text-Book of Physiology for Medical Students and Physicians. By William H. Howell, Ph.D., M.D., Professor of Physiology, Johns Hopkins University, Baltimore. Eighth Edition. Thoroughly Revised. Octavo of 1053 pages, 308 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $6.50.

This standard book needs no introduction to the medical profession. That it has reached its eighth edition is no surprise and is a tribute to its excellence.

The order in which the subjects are treated is very logical, with one exception. It seems to me that the subject matter of the appendix, namely, diffusion osmosis, should be supplemented by surface tension and should be in the first chapter of the book. Everything in the body is ultimately physicochemical, and explanations of phenomena should be attempted on these lines.

Like all text-books which are primarily for students, it has to treat, primarily, the physiology of the various organs and not the physiology of the organism or the interrelation of systems. A few supplementary chapters on pathological physiology would be a great help in making students see the importance of physiology in its clinical bearing. These last statements apply to all the standard text-books of physiology.

The bibliography, while giving the fundamental references, should be supplemented considerably.

F. H. Scott, M.D.

A Manual of Pathology. By Guthrie McConnell, M.D. Fourth edition. Cloth, price $4.50 net. Pp. 611, with 187 illustrations. Philadelphia; W. B. Saunders Company, 1920.

This book treats in 574 pages the broad, general subject of pathology, and as a result each individual subject is disposed of in the briefest possible manner. For the most part it consists only of a group of definitions of pathological terms, but these definitions, brief as they must be, are concise, complete, and comprehensive.

Somewhat unusual features in so condensed a treatise upon pathology are very complete chapters upon "Postmortem Examinations," "Laboratory Technique," "Specific Micro-organisms," "Infection," and "Bacteriological Methods." It is a question whether the chapters upon bacteriology might not better have been omitted in favor of more complete treatment of pathological subjects.

This book, while not detailed enough to be of much value to the medical student who must go more deeply into the subject, will, however, fill a long-felt need of the dental student, nurse, laboratory technician, and social worker who need some accurate knowledge of a complex subject. Such persons will do well to consult this book in much the same way they would consult a medical dictionary. It is also well worth a place on the shelf of the practising physician, for from it he may obtain in a short time brief but accurate knowledge of the principles of pathology.

Margaret Warwick, M.D.

MISCELLANY

NURSING EDUCATION

We take the following complimentary notice of Dr. R. O. Beard's (of the Medical School of the University of Minnesota) work on behalf of nursing education from the *Minnesota Alumni Weekly* of June 15:

> The medical alumni and the nursing alumnæ of the University are doubtless not unappreciative of the services which Dr. R. O. Beard, of the Medical School, has given to the promotion of medical and nursing education in the past thirty-four years, and they may be glad to know of the recognition these services are now meeting. His address on the "Unification of Medical Teaching in Minnesota," published some 15 years ago, and his recent paper on the "Past of the Medical School," have become a part of the history of medicine in Minnesota. As the proponent of the pioneer University School of Nursing at Minnesota and as the author of the address on the "University Education of the Nurse," which has been required text reading at Columbia University for a dozen years, Dr. Beard has become widely known in this particular field. His contribution to the advancement of the combined course in arts and nursing and of the central school of nursing, in which four of the major hospitals have been associated—and especially his recently published reply to Dr. Charles H. Mayo's article entitled "Wanted—100,000 Sub-nurses"—has quickened the interest of the nurses and the nursing organizations throughout the country in Dr. Beard's work. As a result he has been much in demand as a speaker in the cause. Lately he delivered an address before the Central Council of Medical Education in Chicago. He gave the commencement address before the Jewish Hospital in St. Louis, Mo., during the present month, and was also invited to discuss the present status of medical education before the Tri-State Hospital Conference at La Crosse. Last week Dr. Beard went to Madison to give the commencement address before the Madison General Hospital, and from thence to Boston to speak on the present problems of medical education before the Massachusetts State Nurses' Association. From Boston Dr. Beard goes to Seattle, Wash., at the invitation of the League of Nursing Education, the American Association of Nurses, and the National Organization of Public Health Nursing, to address their joint session on nursing education.

The convention at Seattle, held ten days ago, was the largest gathering of nurses the country has witnessed. One hundred and sixty Minnesota nurses attended the convention; and, according to a Seattle paper, when the audience was on its feet applauding at the close of Dr. Beard's address, this "husky" group broke out in song with "Minnesota, Hail to Thee."

NEWS ITEMS

Dr. Henry Takacs has moved from Hitterdal, Minn., to Taylor, N. D.

Dr. T. J. Trutna, of Silver Lake, is taking a course of postgraduate work in Chicago.

Dr. Frederick H. Neher, of St. Paul, was married last month to Miss Cecelia V. Kilbane, of the same city.

Dr. John Abbott, of St. Paul, has gone to Europe for a visit to the hospitals. He will return about Sept. 1.

Dr. M. L. Stiffler, of Yankton, S. D., is now located in Minneapolis, engaged in full-time service with the Veterans' Bureau.

The St. Paul City and County Hospital has purchased fifteen thousand dollars' worth of radium, and will buy more from time to time.

Dr. Charles E. Caine, of Morris, has been appointed a member of the University State Board of Medical Examiners.

Dr. E. J. Bratrude, a recent graduate of the Medical School of the University of Minnesota, has located at Sacred Heart.

Dr. Ernest P. Storey, of Minneapolis, died last week at the age of 43. Dr. Storey committed suicide because of poor health.

The furnishings for the new St. Joseph Hospital of Mitchell, S. D., will be received this week, and are said to be very attractive.

Dr. E. L. Tuohy, of Duluth, has been reappointed, for a term of three years, on the St. Louis County Tuberculosis Commission.

Dr. S. M. Souders, of Red Lodge, Mont., has gone to Chicago to do postgraduate work in the Cook County and Presbyterian Hospitals.

The closing of the hospital at Lake City soon convinced the people of that city that a hospital has too great value to have it closed. The directors have decided to re-open the hospital.

The Enderlin (N. D.) City Council will probably purchase the Glenwood Sanatorium for a city hospital. The cost will be about $20,000.

Dr. Hugh N. McDonald, of Minneapolis, died last month at the age of 59. An editorial appreciation of Dr. McDonald appears on another page of this issue.

The plans for a Lutheran hospital at Bemidji have so far advanced that the executive board feel confident that the hospital will be open early in the coming winter.

A new hospital building is to be erected for the use of the students in the Agricultural School of the University of Minnesota in St. Paul. The building will cost $12,000.

Dr. Russell Hennessey, who has been an assistant of Dr. Charles Granger, of Rochester, for the past year, has located in Memphis, Tenn., and specializes in urology.

St. Cloud has been recommended as the location for the Government hospital for the Veterans' Bureau of the Tenth District, by Colonel Forbes, head of the Bureau.

Dr. John W. Tippie, formerly connected with the Aberdeen Hospital, St. Paul, has been appointed head of the Veterans' Hospital at Memphis, Tenn., which has a capacity of 300 beds.

An open air school for Gilbert is under consideration by the school board of that city. It was suggested by the Lions, who appointed a committee to ask the school board to open such a school.

Drs. F. H. Stangl, Irwin E. Bowing, and P. E. Stangl, of St. Cloud, have moved into a handsome new office building erected for their clinic. It is thoroughly equipped for a modern clinic building.

The Minnesota State Board of Health reports that between Jan. 1 and July 15 of this year there were only 20 deaths reported in the state from spinal meningitis as against 167 deaths for the month of July in 1921.

The Women's Visiting Committee, of St. Paul, has arranged to give monthly motion picture entertainments at the City and County Hospital of St. Paul. Dr. A. B. Ancker, the superintendent, heartily endorses the plan.

A joint tuberculosis sanatorium is under consideration by the counties of Mower, Freeborn, Steele, Faribault, and Waseca. The State would be asked to contribute $50,000, and the same amount would be donated by the five counties.

The Visiting Nurses' Association, of Minneapolis, will give free maternity nursing to the mothers in need of such service in two sections of the city, and will extend such service to all parts of the city when the association funds will permit it.

Dr. E. D. Hitchcock, director of the laboratory of the Montana State Board of Health, has resigned to accept a position in Great Falls, Mont. He will be associated with a clinic composed of Drs. Larson, Porter, Gleason and Hefter, and will have charge of the laboratory of the Deaconess Hospital.

We recently commented in these columns upon a complaint made by American medical men in Vienna that they were grossly overcharged for instruction in the Vienna hospitals. Our information came from the American Medical Association of Vienna, which now informs us that all matters of this kind have been amicably arranged.

Dr. Albrecht Jensen, whose book on "Massage and Exercises Combined" was highly commended in a review of the same in THE LANCET of March 1, 1921, written by Dr. LaVake, informs us that the price has been reduced from $4.00 to $2.50, and also that a film has been made of all the exercises in this book. Dr. Jensen's address is Box 73, General Postoffice, New York City.

At the annual meeting of the Montana State Medical Association, held last month, the following officers were elected: President, Dr. H. T. Rhoads, Choteau; first vice-president, Dr. A. D. Dolan, Helena; second vice-president, Dr. J. B. Reynolds, Great Falls; third vice-president, Dr. L. R. Packard, Whitehall; secretary, Dr. E. G. Balsam, Billings. The next meeting will be held at Butte.

A private publication in Minneapolis masquerading as a society organ, and ardently devoted to antivaccination, made charges last month against Dr. A. J. Chesley, executive officer of the Minnesota State Board of Health, claiming that Dr. Chesley or an employe had falsified state reports on vaccination. The Board heard the editor of the paper and decided that he made out no case whatever.

The permanent organization of the Pacific Northwest Medical Association was effected last month at a meeting held in Spokane, Wash., by the adoption of a constitution and by-laws. The following were elected officers: President, Dr. J. Earle Else, Portland; first vice-president, Dr. A. S. Munro, Vancouver, B. C.; second vice-president, Dr. J. E. Tyree, Salt Lake City; secretary-treasurer, Dr. Frederick Epplen, Spokane; president-elect, Dr. Homer Dudley, Seattle.

Dr. Charles L. Scofield was elected president of the Minnesota State Board of Health last week, Dr. Egil Boeckmann having resigned the office because he had become a member of the Board of Regents of the State University. Dr. Scofield's election to the presidency made a vacancy in the vice-presidency, which was filled by the election of Dr. S. Marx White, of Minneapolis. Dr. J. A. Thabes, of Brainerd, was appointed by the Governor to fill the vacancy caused by Dr. Boeckmann's resignation.

A CORRECTION

In Dr. Rishmiller's paper in our last issue Figures 2 and 3 were transposed. The mistake was not corrected in the page proofs by the printer, although the correction was clearly indicated on the last proofs.

PHYSICIAN WANTS LOCATION

A general practitioner desires to locate in a town of from 500 to 1,500 population, preferably in Southern Minnesota. Address 363, care of this office.

FINE OPENING IN MINNEAPOLIS FOR AN EYE, EAR, NOSE AND THROAT SPECIALIST

A splendid opportunity is offered a good, ethical specialist in the above line who desires to locate in Minneapolis. The office is with a general practitioner and a dentist in an unexcelled location. The field is a large and desirable one. The best of references will be given and are desired from the applicant. Address 261, care of this office.

POSITION IN PHYSICIAN'S OFFICE AS NURSE AND SECRETARY WANTED

Applicant is a graduate of a Philadelphia hospital training-school, and has had two years' experience as an industrial nurse with a Minneapolis physician, doing all the office *x*-ray work. Will go out of the city. Best of references. Address 262, care of this office.

PRACTICE FOR SALE IN MINNESOTA

A practically unapproved practice in Minnesota is offered for sale at the price of office and residence. Practice well established; thirty-five miles from the Twin Cities; population, 1,200; good roads; good collections; people mostly of German descent. Address 260, care of this office.

$10,000 GENERAL PRACTICE FOR SALE IN IOWA

Established 12 years; good fees, collections 100 per cent; population 2,300; thickly settled surrounding rural community; good schools, fine churches; one of the most modern and best equipped 35-bed hospitals in Iowa. Practice can be easily increased to better than $15,000 by doing surgery or eye, ear, nose and throat; nothing to sell but office equipment, drugs and supplies. Address 258, care of this office.

PHYSICIANS LICENSED AT THE JUNE (1922) EXAMINATION FOR PRACTICE IN MINNESOTA

UPON EXAMINATION

Name	Where and When Graduated	Address
Andrews, Walter Coit	U. of Minn., M. B., 1922	De Smet, S. D.
Aurelius, John R.	U. of Minn., M. B., 1922	1072 Dayton, St. Paul
Bohnsack, Eleanore M.	U. of Minn., M. B., 1922	1302 13th St. S., Fargo, N. D.
Borg, Jos. Franklin	U. of Minn., M. B., 1922	798 Dayton, St. Paul
Bower, Harriet Jean	U. of Minn., M. B., 1922	113 Church St. S. E., Minneapolis
Bouma, Lewis Raymond	U. of Minn., M. B., 1922	2901 41st Ave. S., Minneapolis
Brown, Rolla Oscar	U. of Pennsylvania, M. D., 1920	Rochester, Minn.
Cady, Laurence H.	U. of Minn., M. B., 1922	317 Harvard St., Minneapolis

Collier, Sidney W.	U. of Minn., M. B., 1922	General Hospital, Minneapolis
Culligan, Leo Courtney	U. of Minn., M. B., 1922	2069 Iglehart, St. Paul
Dixon, Robert Kenneth	U. of Minn., M. B., 1922	St. Charles, Minn.
Dunn, Halbert L.	U. of Minn., M. B., 1922	1920 Franklin Ave. S. E., Minneapolis
Eisenstadt, David H.	U. of Minn., M. B., 1922	1004 Emerson Ave. N., Minneapolis
Erpelding, John K.	Jefferson, M. D., 1921	Adrian, Minn.
Friedell, Aaron	U. of Minn., M. B., 1922	220 Harvard St. S. E., Minneapolis
Gates, Russell	U. of Minn., M. B., 1922	Kenyon, Minn.
Goldberg, Isadore M.	U. of Minn., M. B., 1922	712 Elwood Ave. No., Minneapolis
Gowan, Lawrence R.	U. of Minn., M. B., 1922	711 Essex St. S. E., Minneapolis
Gydesen, Carl Sophus	U. of Minn., M. B., 1922	2037 Carroll, St. Paul
Halper, Philip Allen	U. of Minn., M. B., 1922	223 E. Fillmore, St. Paul
Hassett, Roger Gerard	U. of Minn., M. B., 1922	509 15th Ave. S. E., Minneapolis
Herman, Arthur L.	U. of Minn., M. B., 1922	General Hospital, Minneapolis
Huchthausen, Magdalene	U. of Minn., M. B., 1922	County Hospital, Los Angeles, Cal.
Jensen, Harry C.	U. of Minn., M. B., 1921	919 Fulton St. S. E., Minneapolis
Josewski, Raymond J.	U. of Illinois, Cert. Med., 1922	Maxbass, N. D.
Kamman, Gordon Richard	U. of Minn., M. B., 1922	City Hospital, St. Paul
Lax, Morris H.	U. of Minn., M. B., 1922	975 Marshall, St. Paul
Leland, Harold R.	U. of Minn., M. B., 1922	Kenyon, Minn.
Liddicoat, Arthur Gordon	U. of Minn., M. B., 1922	Biwabik, Minn.
McGandy, Robert Frank	U. of Minn., M. B., 1922	General Hospital, Minneapolis
McLoon, Mary Anne	U. of Minn., M. B., 1922	Miller Hospital, St. Paul
Monaghan, Raymond Wm.	U. of Minn., M. B., 1922	329 Union St. S. E., Minneapolis
Nelson, Lewis Edward	U. of Minn., M. B., 1922	329 Union St. S. E., Minneapolis
Nelson, Marque Ovid	U. of Minn., M. B., 1922	773 Hague Ave., St. Paul
Neumeyer, Irene O. K.	U. of Minn., M. B., 1922	113 Church St. S. E., Minneapolis
O'Connor, Irwin Arthur	U. of Minn., M. B., 1922	110 W. Winifred, St. Paul
Oman, Michael Francis	U. of Minn., M. B., 1922	St. Joseph, Minn.
Prendergast, Harold J.	U. of Minn., M. B., 1922	223 Walnut St., St. Paul
Roehlke, Arthur Benj.	U. of Minn., M. B., 1922	629 Wash. Ave. S. E., Minneapolis
Schmitt, Earl O. G.	U. of Minn., M. B., 1922	Paynesville, Minn.
Scholtes, Harry J.	U. of Minn., M. B., M. D., 1918	Wabasha, Minn.
Sneller, Charles D.	U. of Minn., M. B., 1922	4427 Blaisdell Ave., Minneapolis
Stillwell, Walter C.	U. of Minn., M. B., 1922	510 Essex St. S. E., Minneapolis
Sutherland, Kenneth Holden	U. of Minn., M. B., 1922	2619 Oak Park Ave., Minneapolis
Wilson, Warren E.	U. of Minn., M. B., 1922	Northfield, Minn.

THROUGH RECIPROCITY

Aland, Albert Harold	Western Reserve, M. D., 1916	734 Lowry Bldg., St. Paul
Bacon, Lyle Cholwell, Jr.	U. of Mich., M. D., 1921	St. Paul, Minn.
Bowman, Leonard Jas.	Baltimore Med., M. D., 1893	Borup, Minn.
Dixon, James F.	P. & S., St. Louis, Mo., M. D., 1905	Rives, Mo.
Jacobson, David Jackson	Drake, M. D., 1913	1916 3rd Ave. S., Minneapolis
Joannides, Minas	Wash. U., Mo., M. D., 1921	2953 Bloomington, Minneapolis
Norris, John F.	P. & S., Baltimore, M. D., 1900	St. Peter, Minn.
Northrup, Laurance Curtis	U. of Nebraska, M. D., 1919	1035 E. Franklin, Minneapolis
Olson, Albert Eric	U. of Illinois, M. D., 1920	112 N. 20th Ave. W., Duluth, Minn.
Parker, Jas. Wm., Jr.	U. of Illinois, M. D., 1920	Rochester, Minn.
Pinard, Carl Jos.	Creighton, M. D., 1911	Gary, S. D.
Ruediger, Ernest Henry	Rush, M. D., 1903	Bismarck, N. D.
Swendson, Jas. Jay	Rush, M. D., 1921	695 Holly, St. Paul
Takacs, Henry	U. of Michigan, M. D., 1920	Hitterdal, Minn.
Waas, Chas. Wm.	Manitoba U., M. D., 1915	Neche, N. D.

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P. H. BURTON, M. D.........................Fargo

COUNCILOR—DEVILS LAKE DISTRICT SOCIETY

G. F. DREW, M. D.......................Devils Lake

COUNCILOR—GRAND FORKS DISTRICT SOCIETY

G. M. WILLIAMSON, M. D...........Grand Forks

COUNCILOR—NORTHWESTERN DISTRICT AND KOTANA SOCIETIES

E. M. RANSOM, M. D..........................Minot

COUNCILOR—SHEYENNE VALLEY DISTRICT SOCIETY

F. L. WICKS, M. D........................Valley City

COUNCILOR—SIXTH DISTRICT SOCIETY

F. R. SMYTH, M. D.......................Bismarck

COUNCILOR—SOUTHERN DISTRICT AND RICHLAND COUNTY SOCIETIES

L. B. GREENE, M. D.........................Edgeley

COUNCILOR—STUTSMAN COUNTY SOCIETY

PHILIP G. ARTZ, M. D...................Jamestown

COUNCILOR—TRAILL-STEELE COUNTY SOCIETY

T. P. MARTIN, M. D........................Mayville

COUNCILOR—TRI-COUNTY SOCIETY

CHARLES MacLACHLAN, M. D......New Rockford

MEMBER OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION

E. A. PRAY, M. D.......................Valley City

Alternate

A. A. WHITTEMORE, M. D...............Bowman

HOUSE OF DELEGATES

CASS COUNTY AND RANSOM SOCIETY

W. C. NICHOLS, M. D.........................Fargo
H. W. MILLER, M. D...................Casselton

DEVILS LAKE DISTRICT SOCIETY

A. W. SWENSON, M. D....................Bisbee

GRAND FORKS DISTRICT SOCIETY

H. W. F. LAW, M. D..................Grand Forks
A. C. DEAN, M. D....................Grand Forks
H. J. FRIESEN, M. D................Grand Forks

NORTHWESTERN DISTRICT SOCIETY

A. J. McCANNEL, M. D.......................Minot
H. M. ERENFELD, M. D.....................Minot

RICHLAND COUNTY SOCIETY

BLAKE LANCASTER, M. D..............Wahpeton

SIXTH DISTRICT SOCIETY

C. E. STACKHOUSE, M. D...............Bismarck

SOUTHWESTERN DISTRICT SOCIETY

A. A. WHITTEMORE, M. D...............Bowman

STARK COUNTY SOCIETY

A. P. NACHTWEY, M. D................Dickinson

STUTSMAN COUNTY SOCIETY

A. W. GUEST, M. D.....................Jamestown

TRAILL-STEELE COUNTY SOCIETY

SYVER VINJE, M. D.....................Hillsboro

TRI-COUNTY SOCIETY

H. VAN DE ERVE, M. D................Carrington

SHEYENNE VALLEY SOCIETY

F. L. WICKS, M. D....................Valley City

COMMITTEE ON MEDICAL EDUCATION

H. E. FRENCH, M. D. (3 years) .... Grand Forks
H. H. HEALY, M. D. (2 years)........Grand Forks
G. J. McINTOSH, M. D. (1 year)......Devils Lake

COMMITTEE ON MEDICAL DEFENSE

FRED EWING, M. D. and C. N. CALLANDER (2 years); E. A. PRAY, M. D., and H. O. ALTNOW, M. D. (1 year); R. W. PENCE, M. D., and H. W. F. LAW, M. D. (3 years).

COMMITTEE ON PUBLIC HEALTH

C. J. McGURREN, M.D.; A A. WHITTMORE, M.D. A. A. NICHOLS, M. D., E. M. RANSOM, M. D.; S. A. ZIMMERMAN, M. D.

RECOMMENDATIONS FOR STATE BOARD OF MEDICAL EXAMINERS

PAUL H. BURTON, M. D....................Fargo
GEO. M. WILLIAMSON, M. D.......Grand Forks
W. A. GERRISH, M. D........................Fargo

COMMITTEE ON INSURANCE

Secretaries of the Local Societies and Members of the Medical Defense.

COMMITTEE ON SCIENTIFIC WORK

G. W. WILLIAMSON, M. D............Grand Forks
H. H. HEALY, M. D....................Grand Forks
W. H. WITHERSTINE, M. D..........Grand Forks

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

V. J. LA ROSE, M. D......................Bismarck
F. R. SMYTH, M. D.........................Bismarck
H. O. ALTNOW, M. D......................Mandan

COMMITTEE ON TUBERCULOSIS

JAMES GRASSICK, M. D............Grand Forks
FANNIE DUNN QUAIN, M. D..........Bismarck
J. G. LAMONT, M. D.......................Dunseith

Proceedings of the House of Delegates

First Session—Wednesday, May 31, 1922

The first meeting of the House of Delegates of the thirty-fifth annual session of the North Dakota State Medical Association was called to order at the Hotel Gladstone, Jamestown, Wednesday evening, May 31, 1922, by the President, Dr. H. E. French, Grand Forks.

The Secretary called the roll of Delegates and Councilors; and the President announced that a quorum was present and that the House was duly constituted for the transaction of business.

As the minutes of the 1921 meeting had already been published in The Journal-Lancet, on motion, duly seconded and carried, the reading of the minutes was dispensed with, and the minutes were adopted as published.

REPORT OF THE CHAIRMAN OF THE COUNCIL

Dr. F. R. Smyth, Bismarck, presented the following report:

I wrote to all the different societies and have tried to formulate a report from their replies.

The secretary of the Tri-County Medical Society reports that they have seventeen members in good standing. There have been no deaths in that district during the year and the society has engaged in no special activities.

The Sheyenne Valley Society has twenty members in good standing. Dr. J. M. Caldwell, Wimbledon, N. D., not a member of the society, died in May, 1921.

No special activities were engaged in during the year.

The Stark County Society reports that they have eleven members in good standing.

The Grand Forks District Society have seventy-one members in good standing. There have been no deaths in their district in the past year, with the exception of Dr. J. A. McKay, of Emerado.

They have had a meeting every month of the year, all of which have been well attended, and a special meeting in May at which a resolution was passed and went to the secretary of each component society of the state.

The Sixth District Society has forty-eight members in good standing. There have been no deaths within the past year and no special activities. Three doctors have moved out of the state, Dr. MacLachlin to California, Dr. S. G. Larrabee to Minnesota, and Dr. J. B. Tyrell to Kansas.

The Southern District Society reports fifteen members in good standing and no special activities during the year. Dr. F. S. Sturgeon, of Kulm, died March 3, 1921, in his office, aged forty-seven.

The Stutsman County Medical Society reports twenty-one members with no deaths and no special activities during the year.

The Trail-Steele Medical Society has eleven members in good standing. All but one of the doctors in that district is a member of the society, and he may be a member elsewhere. They have lost no members by death during the past year.

The Devils Lake Medical Society reports twenty-six members in good standing with no deaths during the past year. That society had a meeting on cancer open to the public, with a large attendance. This was reported in The Journal-Lancet of February 15, 1922. No other special work was done.

The Cass County Medical Society reports sixty-four members in good standing with no deaths among the members during the year. They have had three papers by men from outside the state during the year, one on "Duodenal Ulcer," by Dr. A. C. Strachauer, Professor of Surgery, University of Minnesota; one on "The Treatment of Diabetes Mellitus," by Dr. R. M. Wilder, of the Mayo Clinic; and one on "Malignancies of the Large Bowel," by Dr. Carl Davis, Associate Professor of Surgery, Rush Medical College. It has been the aim of this society to have as many first-class papers and as little business as possible.

REPORT OF THE SECRETARY

Dr. H. J. Rowe, Secretary, Lisbon, presented the following report:

SECRETARY'S REPORT

Another year has closed and we begin the new with a decided decrease in membership as compared with the past year. We have seventy-nine names less than last year; true, some names will be added to the present membership before the year closes. Much of this loss can be attributed to the secretaries of the local societies because they do not attend to the collection of dues prior to the time they turn over the office to their successors. Frequent changes in the clerical office of a component society are detrimental to any society, because the new incumbent is ushered into an office without previous notice or training and, in not a few instances, his predecessor fails to turn over to him the books, papers, and blanks that pertain to the office, and frequently the State Secretary is not advised of the change that has been made. This unbusinesslike method causes the State Secretary to continue writing to the old secretary, getting no reply, when all this additional work could be obviated if he were advised of the election of officers.

GROUP INSURANCE

As nearly as can be definitely determined from the checking of the names of those who have taken insurance in the group method devised and adopted, and subtracting the cancellations reported, there are in force at present two hundred and fifty-three policies in the Aetna Life Insurance Company. The insurance, judging from the number that have availed themselves of a policy, appears to be popular and serves a long-felt want at a moderate cost for protection in case of malpractice suits.

MALPRACTICE

Malpractice suits continue to annoy physicians of the state, and, as a consequence, the cost of defending the suits is making inroads on our finances. A full report of the Medical Defense condition in this state will be submitted by the retained attorneys of the Association.

STATE MEDICAL SECRETARIES' CONFERENCE

I attended the annual conference of the State Medical Secretaries at Chicago in December, 1921, when discussions as to the best method of carrying on the work of the American Medical Association were presented by the trustees, who signified their willingness on invitation to visit annual meetings of state societies. The respective secretaries were asked to present any of the peculiar problems that existed in their states, and these were discussed and remedies suggested.

These annual meetings are very helpful, and the comparisons of existing conditions in the several states in their methods of doing business are productive of good results. The ingenious methods that are employed in the various states are peculiar to their respective sections of the country.

Suggestions, too, were made and discussed in what way the trustees of the A. M. A. could be more helpful to the state associations. Criticisms were many and were well received in the spirit in which they were presented.

We had a two days' session, and the time was fully occupied in defining what was best for the upbuilding of the profession.

Dr. Hubert Work, president of the American Medical Association, and the present Postmaster General, presided at the opening of the conference.

ANNUAL REPORTS

All the component societies have reported, but some of them were extremely late, running into the month of May, nearly three months later than the prescribed time given, which is February 1. This tardiness is expensive to the State Association, since the publishers of The Journal-Lancet continue to send their publication until such time as they receive an official roster, which cannot be completed until all the societies have reported.

The local secretaries have been instructed to send in the names promptly of those who have paid their dues to The Journal-Lancet, so that we would be paying only for those who are entitled to receive the publication. With seventy short of last year these will be receiving The Journal-Lancet, and the State Association will be paying for those who are not entitled to receive the periodical.

The Journal-Lancet is not to blame for this, neither is the State Secretary, because the latter knows nothing about the delinquents until the annual report is received.

Fraternally,
H. J. Rowe, M. D., Secretary.

This report was accepted as read and ordered placed on file.

REPORT OF TREASURER

Dr. J. P. Aylen, Treasurer, Fargo, presented the following report:

TREASURER'S ANNUAL REPORT
NORTH DAKOTA
STATE MEDICAL ASSOCIATION
1921-1922

Assets:		
Balance general fund, May, 1921	$1,528.45	
Savings account, April 1, 1921	1,729.25	
Interest on savings account, April 1, 1922	70.21	
Liberty Bonds (2) in First National Bank	1,000.00	
Dues received from Dr. Rowe, Secretary	2,015.00	
Total assets for year ending May, 1922		$6,342.91
Disbursements:		
Eighteen checks to cover warrants No. 228 to 245 (inclusive)		2,560.88
Balance		$3,782.03
Distribution of funds at present time:		
General fund balance	$ 982.57	
Savings account to April, 1922	1,799.46	

Liberty Bonds (2) in First National Bank	1,000.00
Total balance	$3,782.03

Respectfully submitted,
James P. Aylen, M. D., Treasurer.

Dr. Aylen called attention to the fact, mentioned in 1921, that he received from Dr. Sihler in the checking account $2,008.70 and that this amount had decreased to $952.87. In 1920 the receipts from dues were $2,840.00, and the expenditures were $2,590.45. In 1921 the dues amounted to $2,015.00, with an expenditure of $2,560.88.

After some discussion the report of the Treasurer was ordered received and placed on file.

REPORTS OF COUNCILORS

Dr. G. F. Drew, Devils Lake: Our District Society is much the same as last year and the year before. I think the meetings have been a little better attended and the programs more interesting. Taking it all around, the Society is in better working condition than it has been before. There has been some decrease in membership, principally because of transfers from one district to another. The medical population of the district is getting smaller every year, and it is impossible to keep up the membership. This year I reported twenty-five members and thirteen non-members. The year before there were thirty-one members and fifteen non-members. Of these six members that were lost five were transferred to other districts, and one was dropped for non-payment of dues. The proportion of members to the total number in the district remains about fixed.

The attendance at the first meeting was thirteen, at the next eighteen, at the third twenty and at the fourth fifteen. We had four meetings during the year and this is a pretty fair attendance considering the fact that the district covers five counties, and it is difficult for many of the men to be present. The meetings were all fairly good, and we have the promise of four new members next year. I think the improvement in the work of the Society has been because we have had a program committee appointed for each meeting. That committee had usually been made up of different men; occasionally the same man will act again, but it is usually a new man, and he takes more interest in it and will do something. The secretary gets tired of drumming at the same people all the time and is not as active in this way as he would naturally be. We are convinced that the appointment of a program committee has been a great help to our Society.

We had one open meeting. We held it in the Court House and had three papers on cancer. About three hundred people attended it, and it was a good meeting in all senses of the word. The people enjoyed it, and it was a meeting that really paid. I think that could be done with advantage by all the societies.

Dr. G. Golseth, Jamestown, presented the following report for that district:

The Stutsman County Medical Society held eight meetings during the year of 1921.

Papers were given on the following subjects: Influenza, Drug Addictions, Tumors of the Mammary Gland, Vincent's Angina, Mechanics of Referred Pains, Clinical Calorimetry, and Ophthalmoscopy.

Officers were elected at the November meeting for the year of 1922, but at the December meeting the election was rescinded because it was an open violation of the by-laws and no new officers were elected, thus leaving the old officers in office.

G. G. Golseth, M. D., Councilor.

Dr. George M. Williamson, Grand Forks, presented the following report for that district:

The Grand Forks District Medical Society, comprising the Counties of Grand Forks, Walsh, Pembina, Cavalier and Nelson, is in a healthy condition.

Meetings have been held regularly every month. The scientific programs have been interesting, more attention having been given to the presentation of clinical cases.

We have a strongly united profession in this district, harmony prevails, and the ethics of the members of the society are of a high order.

There are 81 licensed physicians in the district. Eighty are in active practice. Of this number 71 are members of the society. Three belong to adjoining societies, and seven are non-members. We have one member living in Winnipeg.

We have been fortunate in having the society well officered. The high percentage of members indicates this. The men in charge this year are working hard and keeping up the interest created by their predecessors.

There has been no death among the members this year.

I also wish to call attention in this report to the difficulty the secretary in my district has, and I presume this holds good in other districts, in getting the members to pay their annual dues promptly. This delay causes no end of annoyance and work for the local secretary, as well as the secretary of the State Association. If the law was strictly followed, we would find that many of our members forfeit whatever claim they have for medical defense every year by negligence.

Here is a portion of our laws governing this question:

By-Laws, Chapter 2, Sec. 3. The fiscal year of this Association is the calendar year.

Chapter 1, Sec. 5. For the purpose of medical defense a member shall be regarded as in good standing only when his dues have been received by the Secretary of the State Association.

Chapter 12, Sec. 11. The Secretary of each County Society shall keep a roster of its members, etc., and furnish an official report to the Secretary of this Association on or before February 1 each year.

It is very clear that a member who does not pay his dues during the month of January is in grave danger of losing his rights in the medical defense feature of this Association.

I have mentioned this in the hope that it may bear fruit throughout the state. There is not a member of this Association who cannot pay his dues during January. Why not do it next year?

(Signed) G. M. Williamson, M. D., Councilor.

Dr. Williamson: If we are going to continue the medical defense—I have never been in favor of it and am not now—I think we shall go bankrupt if it is continued. Our association is too small to keep up an affair of this kind, and you can see from the report of the treasurer the difficulties we are running into.

Dr. Paul H. Burton, Fargo, presented the following report for his district:

Dr. Burton: We have another matter that I wish to have brought up here and thrashed out. We have had a little difficulty during the past year with our Secretary of the State Association. It has been our understanding that at the Minot meeting a motion was made and passed that the Association should donate $150.00 for entertainment purposes. We have never yet received that $150.00 that went for entertainment. Our meeting last year cost over $800.00. If it is going to be so that it costs the local men six, seven, or eight hundred dollars for the meeting that is a good deal of a drain on the local men.

Dr. F. L. Wicks, Valley City, presented the following report for his district:

REPORT FROM THE SHEYENNE VALLEY MEDICAL SOCIETY

Mr. President and Members of the House of Delegates:

In our society we have twenty doctors holding membership, a loss of three. Every effort has been made to bring those lost into the fold again for this year. Two of our members were transferred to other societies.

Our men are all regulars. We have no illegal practitioners and have had no death in our membership. Dr. Caldwell, of Wimbledon, a former member, passed away last June, holding membership at that time by transfer in a Minnesota society.

We have been unfortunate in that inclement weather interfered with our attendance on several dates, but, I am sure, those present are always well paid for their effort.

Our annual meeting and banquet was held February 24. The officers elected were president, Dr. E. B. Crosby; vice-president, Dr. F. L. Wicks; secretary-treasurer, Dr. Will H. Moore; delegate, Dr. E. A. Pray; alternate, Dr. S. A. Zimmerman; censors, Drs. Westley, Pray, and Crosby.

We have had reported and discussed clinical cases of the following character: Genito-urinary diseases; sarcomatous teratoma; conical cornea; focal infection; foreign body in the knee-joint—a needle.

Respectfully submitted,
F. L. Wicks, M. D., Councilor.

Dr. Andrew Carr presented the following report for Dr. E. M. Ransom, of Minot:

We have sixty active, paid members. Four doctors in our District are not members of the Society. We have held four regular meetings during the year and one special meeting for Dr. H. E. French, President of the State Medical Association, February 15, 1921. Three papers of scientific interest were read and discussed at these meetings.

Within the year Dr. James Holiday, of Mohall, North Dakota, died of pneumonia.

Dr. Charles MacLachlan, New Rockford, reported for his district as follows:

I am very sorry, Mr. President, that I cannot present a better report at this time. We were proud of the report last year, and I think it was as good a report as was ever presented by any district in the state.

I was called away and was out of town for three and a half weeks. On the way down here I have been thinking about the matter, but have not had a chance to talk to the Secretary of our Society in the meantime.

I will state that the Tri-County Society has had six meetings, one at Harvey, one at Saxon, one at Fessenden, one at Carrington, and two at New Rockford; and all of them were well attended. There have been twelve to fifteen members at each meeting.

We have had but two papers presented, and yet each of the meetings was a good one. We have had some interesting clinical cases presented in an interesting way, and I feel, while I am not presenting a very good report, that we have one of the best societies, even though it is small in membership, in the state. All of our members are efficient members, and all want to do what they can for the Society, and are willing to contribute towards its success in every way.

We have eighteen or nineteen members in good standing. I cannot give you the exact details without seeing our Secretary. I have tried to get some facts together from memory.

I think we have gained one member, Dr. Westervelt, of Bowdon, who followed upon Dr. Clay, who moved to Fargo. We have added one member, a young man who graduated a few years ago and served in the war, Dr. Ray Tompkins. He is one of our best members and wishes to be considered for the program for next year.

We have had no deaths, and none of the other members has gone away.

I would like to report later, Mr. President and members, but think it is right that we should go on record here that we think it advisable for the Councilors of the district to go and visit the different doctors and find out conditions locally and be able to report as a family.

I think if you will refer to our report of last year you will find that the representative visited the different doctors in the neighborhood. I think we should not present excuses, but that as Councilors we should go through our district and learn the difficulties with which the local practitioners meet. We have had some of these in our district, and I think we should go so far into these things that we can present a report that means something.

I would like at some later time to present a more formal report from my district.

REPORTS OF COMMITTEES

COMMITTEE ON NECROLOGY

Dr. F. R. Smyth presented the following report:

REPORT ON NECROLOGY

Since the last annual meeting of our Association seven physicians who had practiced in the state have died, as follows:

Dr. O. N. Begtrup, formerly of Rugby, Pierce County, had moved to Viroqua, Wisconsin, and died in a hospital at Rockford, Ill., on December 12, 1921.

Dr. C. A. McKay, Emerado, Grand Forks County, died on September 26, 1921.

Dr. Edward L. Hills, Center, Oliver County, died in the Mandan Hospital, Mandan, on September 19, 1921.

Doctor Fred Rundle, Midway, Slope County, died in August, 1921.

Dr. O. E. Distad, Williston, Williams County, died in Pekin, China, on June 21, 1921.

Dr. Benjamin Frankson, Upham, McHenry County, died in June, 1921.

Dr. J. Halliday, Mohall, Renville County, died in June, 1921.

The secretaries of the Kotana, Richland County, and Southwestern District Societies failed to respond to a request for information, and the other societies neglected to give any details of physicians dying in their districts.

F. R. Smyth, M. D., Chairman, Councilor.

Bismarck, N. D., May 31, 1922.

Dr. George M. Williamson: I reported no deaths in my district. It is true that Dr. McKay died, but he has never been a member of our Society. I think it is not within the scope of our duty to report the deaths of those who do not take enough interest in the Society to join it.

COMMITTEE ON TUBERCULOSIS

Dr. J. G. Lamont presented the following report in the absence of the Chairman, Dr. James Grassick:

REPORT OF COMMITTEE ON TUBERCULOSIS

The North Dakota Tuberculosis Association continues to function in avenues outlined by its constitution. During the past year it has been more active than in any like period of its history. The following is a summary of its leading activities:

LITERATURE

The Association maintains an office and headquarters at Bismarck under the charge and supervision of a trained secretary, where a supply of tuberculosis and other literature on the subject of health may be obtained and where all matters pertaining to the Association or its work may be adjusted. Crusade supplies are kept on hand and sent out to those doing the work. The Association also publishes the *Pennant*, the only health journal in the state. It has a monthly circulation of 5,000 copies. In addition to acting as a medium for the interchange of ideas between the Association and its members, it endeavors to present and discuss matters pertaining to health and right living. It thus furnishes general and casual readers with timely topics that enlist their attention and keep before them the leading facts of personal and community well-being.

NURSING SERVICE

The North Dakota Tuberculosis Association was the first to publicly advocate the employment of public health nurses in the state. From a small beginning they have seen the movement develop until at the present time over half of the counties in the state employ visiting, school, or community nurses. The Association entered the field early and has kept a corps of trained and efficient nurses at work giving service to places not otherwise supplied. This department has been a great educator for personal hygiene, home sanitation, healthy surroundings, clean living, and community betterment. Christmas Seals keep them at work.

OPEN AIR SCHOOL

The Tuberculosis Association has undertaken the expense of equipment and maintenance of an open air school; and, after some years of successful operation, it is an established department of tuberculosis work at the Sanatorium. At present the school room consists of one of the open air porches and has been fitted with blackboards, desks, globes, etc. The enrollment and daily attendance have proven entirely satisfactory. Blanket wrappings over fur wraps will defy even North Dakota winter weather. The ruddy glow produced by an hour of crisp sunshine and the glass of hot milk is well worth the trouble. This is a little piece of applied philanthropy that will commend itself to every one who is interested in the welfare of those who are doubly handicapped by reason of disease and who have never had an opportunity of receiving even a rudimentary knowledge of our common branches of learning.

MODERN HEALTH CRUSADE

This is a movement to teach Health by Doing. It is recognized as the greatest advance made in health work for a century. It is founded on the principle of the formation of health habits early in life that will stick through all the after years. In North Dakota 200,000 children are enrolled, pledged to perform their Health Duties and thus form health habits from doing; and the great majority of them make good. What it will mean to the state and to the cause of right-living to have an army of this size trained with health consciences and health characters, can hardly be realized. This is a distinctive work of the Tuberculosis Association. All supplies for the state came through T. B. Headquarters, Bismarck.

CLINIC

North Dakota has only one physician for every 1,162 of population! This is a less percentage than any other state. Many people in the western part of the state are far removed from medical centers and, as a consequence, suffer from lack of medical counsel. To remedy this in a small way, the Association equipped the Traveling Clinic and sent it with physician and nurse to out-of-the-way places to give such help as was feasible to those in need, the great object being to work ethically, to educate the people along right lines, and to direct them in proper channels of health. The results were so encouraging and so satisfactory that it is again in the field. With last year's experience to work on we feel that its efficiency will be enhanced.

THE STATE SANATORIUM

This institution has developed, within a few years, into a well-equipped hospital, undertaking the essential treatment of all classes of pulmonary tuberculosis. Results have been favorable in the incipient and moderately advanced classes. A new infirmary, caring for sixty patients, was opened in 1921, making the total about one hundred twenty patients. Food distribution, a difficult problem in all hospitals, has been improved through the use of a well furnished, modern diet kitchen for each twenty patients. The institution has thus been able to correct some faults in food service, which were inevitable in earlier years. A complete, modern *x*-ray is in daily use. A large army sterilizer for disinfection of bedding and clothing has been lately added to the laundry. Heliotherapy is being used to a limited extent with favorable results.

It is to be remembered that a sanatorium designed, as it is, for the treatment of active cases can cover only a very small portion of the tuberculosis field. Post-sanatorium treatment and observation are necessary in all cases, and the tuberculosis fight of coming years will be directed against childhood infection and toward the proper control of germ-carriers, both before and after sanatorium treatment. This can be done only through official state agencies, and until the public sufficiently understands the necessity for such work there can be no adequate, organized effort in the state tuberculosis field, except that of an educational campaign successfully demonstrating the advantage of a general high standard of good health. It should be made the purpose of all medical societies to aid in a campaign against malnutrition in children, to provide a systematic follow-up record of contact cases, and to insist upon milk inspection of all dairy herds in the state. To this end, the co-operation of our medical profession is solicited by this committee.

JAS. GRASSICK, M. D.
FANNIE DUNN QUAIN, M. D.

COMMITTEE ON MEDICAL EDUCATION

Dr. H. E. French presented the following report:

As Chairman of the Committee on Medical Education I would report that the Committee has had conferences, but has not met formally.

The School of Medicine of the State University continues to function as a two-year school. The classes this year number twenty-two and twenty respectively, while half as many more applied for admission last fall, but could not be received because of lack of room. The School retains its favorable rating. Of last year's class two students entered the junior year at Harvard, one at Pennsylvania, four at Rush, and others are in other good schools.

The Chairman attended the annual conference on medical education in Chicago in March.

MISCELLANEOUS BUSINESS

The question of continuing the present contract with THE JOURNAL-LANCET was introduced by the Chairman, and was discussed informally by Drs. Quain, Golseth, MacLachlan, Aylen, Williamson, and Burton.

Dr. Golseth moved that the next meeting of the House of Delegates be held at the close of the morning session, when it was expected that Mr. Klein would be present. Seconded and carried.

On motion, duly seconded, the House of Delegates adjourned at 11:40 P. M.

SECOND SESSION—THURSDAY, JUNE 1

The second meeting of the House of Delegates was called to order at the Elks' Hall, Jamestown, Thursday, June 1, 1922, at 12:30 P. M., by the President, Dr. H. E. French, Grand Forks.

The Chairman stated that an informal discussion regarding connection with THE JOURNAL-LANCET had taken place the evening before and that the House would be pleased to hear Mr. Klein's and Dr. Jones' viewpoint.

Dr. W. A. Jones and Mr. Klein then addressed the House, and the matter was further discussed by Drs. Quain, Bowen, Burton, Lamont, and Smyth.

At the close of the discussion Dr. MacLachlan moved that the matter be referred to the Council for action. Seconded and carried.

On motion, duly seconded, the House of Delegates adjourned at 1:15 P. M. to reconvene at 8:00 A. M. Friday.

THIRD SESSION—FRIDAY, JUNE 2, 1922

The third session of the House of Delegates was called to order at the Elks' Hall, Friday, June 2, 1922, at 8:45, by the President, Dr. H. E. French, Grand Forks.

UNFINISHED BUSINESS

Dr. H. O. Altnow, Mandan, read the following letter from the Chairman of the Committee on Legislation, and the Committee on Cancer, Dr. V. J. LaRose:

Bismarck, N. D., May 20, 1922.

Dr. H. E. French,
Grand Forks, N. Dak.
Dear Doctor:

The following two propositions have occurred to me that may be brought up before the House of Delegates or mentioned in your presidential address:

First, in regard to the Committee on Legislation: As chairman of this committee it has become necessary on several occasions when undesirable medical legislation was contemplated for me to send out an S. O. S. to different members of the State Association in order to acquaint them with the pernicious legislation that was being proposed. As you know, these bills are usually drawn up in a hurry and presented for passage before one has a chance to become familiar with them; hence it has been necessary in many cases to telephone, telegraph, and write personal letters, using our office stationery, postage, and stenographer's services in addition to paying for telephone and telegraph messages.

We have usually taken care of this expense by paying it out of our own pockets rather than to bother putting in bills to cover it. I would suggest that an appropriation be made to take care of any contingent expense that may be incurred by the Legislative Committee. I am sure $50.00 or $100.00 is all that would be necessary. This, of course, would be used only in part as needed, any balance on hand being reported to the treasurer at the next annual meeting.

Then, in regard to the cancer program, which will again be staged next November: As chairman for the state of North Dakota, I had much the same experience. Numerous letters to be written, packages to be forwarded to the different parts of the state, requiring postage, telephone messages, telegrams wiring for instructions, etc. The expense of this was borne by a few of us here at the office by digging down into our own pockets for it. I believe this cancer situation should be taken up by the State Association, and turned over to the Public Health Committee with an appropriation for paying the necessary expenses required to give this subject publicity throughout the entire state. By starting early, all material could be distributed to the different subcommittees so as to make the campaign much more far-reaching this year than it was last year. I think, also, it would be possible to keep the cancer film "The Reward of Courage" long enough so that it may be shown in every picture house in the state. There is nothing like a graphic portrayal of a subject of this kind to impress it upon the minds of the people.

Yours fraternally,

V. J. La Rose, M. D.

The Chairman: This is a matter of appropriation. I understand that we have been paying the expenses whenever the matter has been called to our attention. This matter was discussed in the Council yesterday, and it was the consensus of opinion that it was best not to appropriate any budget, but to take care of any necessary expenses.

This was discussed by Dr. Smyth.

The Chairman: Last year Dr. LaRose was Chairman of the Cancer Committee, and he suggested that we ask the Public Health Committee to take over the work he had been doing. I think these things should be co-ordinated, instead of having separate committees on cancer, tuberculosis, etc., if the Committee on Public Health will do it.

Dr. George M. Williamson moved that the work formerly done by the Committee on Prevention of Cancer be delegated to the Committee on Public Health. Seconded and carried.

REPORT OF THE DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION—1921

The Secretary presented the following report from Dr. A. J. McCannel, Delegate to the American Medical Association in 1921:

To the House of Delegates, North Dakota State
Medical Association.

Gentlemen:

The annual meeting of the American Medical Association was held at Boston, Mass., June 6 to 10, 1921. The meeting of the House of Delegates was held in the Boston Medical Library Building. The first meeting was called to order at 10 A. M., June 6, by Dr. Dwight H. Murray, Syracuse, N. Y. As you have already had a full report of the proceedings as published in the *Journal of the A. M. A.*, I shall not burden you with an extended report, but shall simply mention a few points which I consider of most interest.

The report of the Board of Trustees showed a net gain on the *Journal* for the year 1920 of $30,000.00, and that the total number of subscribers January 1, 1921, was 78,560, a gain for the year of 3,641. The percentage of physicians in each state receiving the *Journal* varied from Arizona with 78 per cent to Arkansas with 27 per cent, only six states in the Union having a higher percentage than that of North Dakota, which is 63 per cent.

The Council on Health and Public Instruction presented a lengthy report in which they recommended the establishment of hospitals in rural communities with Röntgen ray and laboratory facilities to be used by the legalized physicians of the community, following the Iowa law for county public hospitals.

The Council on Medical Education and Hospitals gave a report in which they show that organized medicine is preferable to state medicine and recommend changes in the undergraduate medical course and also a better training for specialists.

The report of the Judicial Council presented a plan for the reorganization of the Board of Trustees by dividing the United States into seven districts and electing one trustee in each district for seven years. This proposal developed a great deal of opposition and was laid over until the 1922 meeting. They also recommended that the Alaskan Territorial Medical Association be received and made a constituent society of the American Medical Association. This was carried.

An amendment to the constitution was introduced providing that ex-presidents and trustees should be ex-officio members of the House of Delegates, but without the right to vote.

A good deal of time was given to the discussion of the State's relation to medicine. This discussion was quite heated and personal at times. The following resolution was finally adopted: "Resolved by the House of Delegates of the American Medical Association that it approves and endorses all proper activities and policies of state and federal governments directed to the prevention of disease and the preservation of the public health."

The question of medical defense under the American Medical Association was brought up, and the Judicial Council was instructed to investigate the feasibility of the American Medical Association organizing a national medical defense system so that the money that is now being paid by the profession can be properly divided among the members of the profession to whom it rightfully belongs.

The medical profession and the people of the city of Boston have a reputation for hospitality, and this reputation was more than sustained by the treatment which they gave visiting doctors and their families.

Respectfully submitted.
A. J. McCannel, M. D.,
Delegate to the American Medical Association, 1921.

Upon motion, duly seconded, this report was ordered received and placed on file.

Dr. George M. Williamson suggested that a similar amendment be made to the Constitution of the Association in regard to ex-presidents being ex-officio members of the House, and gave notice of such an amendment to the Constitution to be voted on at the next annual meeting, the amendment to be as follows:

> Ex-presidents shall be ex-officio members of the House of Delegates, but without the right to vote.

REPORT OF THE COUNCIL

Dr. George M. Williamson presented the following report:

FIRST SESSION

The first session of the Council of the North Dakota State Medical Association convened at the Hotel Gladstone, Jamestown, at 1:30 P. M., Thursday, June 1, 1922, with the following members present: Drs. Smyth, Burton, Drew, Greene, Ransom, MacLachlan, and Williamson.

A report on the meeting held by the Stutsman County Medical Society on November 28, 1921, for the election of officers, was submitted to the Council for action.

It was moved by Dr. MacLachlan, and seconded by Dr. Burton, that the officers elected on November 28, 1921, by the Stutsman County Medical Society be recognized as officers of the above named Society for the year of 1922. Carried.

As this completed the business before the Council at this time, on motion the meeting adjourned.

SECOND SESSION

The second session of the Council convened at the Hotel Gladstone, Jamestown, at 7:00 P. M., Thursday, June 1, 1922, with the following members present: Drs. French, Rowe, Smyth, Burton, Wicks, Drew, Ransom, Greene, and Williamson.

The meeting was called for the purpose of discussing The Journal-Lancet.

It was moved by Dr. Greene, seconded by Dr. Burton, that a committee consisting of Drs. Quain, French and Smyth be appointed to take charge of The Journal-Lancet contract, with power to act for the Association. Carried.

It was moved by Dr. Wicks, seconded by Dr. Greene, that the Delegate to the A. M. A. be allowed $100.00 for expenses. Carried.

It was moved by Dr. Drew, seconded by Dr. Wicks, that the Cass County Medical Society be paid $150.00 for entertainment for the 1921 meeting. Carried.

It was moved by Dr. Greene, seconded by Dr. Burton, that the Stutsman County Medical Society be paid $150.00 for entertainment during the 1922 meeting. Carried.

The election of officers of the Council resulted as follows:

Chairman, Dr. F. R. Smyth, Bismarck; Secretary, Dr. G. M. Williamson, Grand Forks.

Dr. Williamson: The contract with The Journal-Lancet runs until the first of January, and after the committee has investigated the matter they will report. I move that the report of the Council be adopted. Seconded.

Discussed by Drs. Golseth and Smyth, after which the motion was put to a vote and carried.

Miscellaneous Business

PUBLIC HEALTH LABORATORY

Dr. A. W. Guest introduced the subject of establishing a Public Health Laboratory at Jamestown, and said the feasibility of this had been discussed, with the idea of establishing it at the State Hospital. There has been some dissatisfaction about reports not being sent out promptly, and it had been thought that it would work to the best interests of that part of the state if another laboratory could be established. An appropriation was made in the Legislative Session of 1918 to establish a laboratory for the Institution, which appropriation had not been used. Last year the Attorney-General ruled that this would revert back to the State until July, 1921. Dr. Guest saw no reason why some of that fund might not be used if it could be arranged to have the laboratory established.

Dr. French: I think the Institution might well have its own laboratory and the Institution for Tuberculosis. It is to be assumed that they should have their own laboratories, and I think some time we shall have county laboratories. Then those in connection with the State Laboratory, if they could run a laboratory up there, could do a certain amount of clinical work, perhaps not so much tuberculosis and diphtheria work, for a fee from the doctors.

I think we have an appropriation for public health work, and I think that for efficiency it is too much scattered now. I think we could do better if we could concentrate this so as to have a laboratory at Fargo, concentrating all the work there. Having it scattered over so many branches does not make for efficiency. I do not think it is well to consider starting another branch. If the State Hospital could run a laboratory there, and do some private work for a small fee, I should be glad to have them do so.

As to delay, we have been running things rather short-handed. We have never been on our feet since Dr. Ruedeger left us, and have run this year without an efficient head of the laboratory. We have had some good diagnosticians, but we have been short-handed. I think this will soon be remedied, and then we can run Wassermann tests three times a week. Now they are made only twice a week, and if any specimens come in on Friday, after the Tuesday lot is finished, they have to wait until the following Tuesday. I am not director of the laboratory, but I am interested in it and am a natural advisor of the Board, a sort of a general overseer, and I should dislike to see you adopt a policy that would give more laboratories, for I do not think it would give us efficiency.

Dr. A. W. Guest: In regard to establishing a laboratory and charging a fee for outside doctors: I do not think this is feasible, and I would not recommend it at all. I have no complaint regarding the Wassermann tests done for the Hospital. I started the Wassermann reaction as a routine April 1, 1921. I think I have sent about 278 specimens, and there has not been any complaint during the last year.

Dr. F. R. Smyth, Bismarck, moved that the formation of a public health organization be carried out, in accordance with the recommendation made in the President's address. Seconded and carried.

Dr. H. E. French: This, I am sure, will be a good thing not only for the State, but for the profession. Dr. Robert Olesen, a man from the U. S. Public Health Service, is in the State at this time at my invitation. I made a request for assistance from the Public Health Service to Surgeon General Cumming after advising with other members of the State Board of Health and Governor Nestos, and Doctor Olesen is here for an indefinite time to help us in the work of the State Board of Health. If the State will make better provision for the Department of Health and put in a full-time health officer, much can be accomplished. The department, I think, should be located at the Capitol, but I hope that the laboratory work will be left at the University, but this is only a detail.

COMPULSORY VACCINATION

Dr. W. C. Fawcett: Two years ago the proposition of compulsory vaccination was brought up, and at that time it was agreed that it was impossible to do anything with the administration in office then. The administration has changed now, and we are beginning to see a little light. If there ever was a time that we needed revision of that law it is now. The young children of the state are not vaccinated, and every county of the state is riddled with smallpox. Every country practitioner has twelve to fifteen cases on his hands.

I move that our Committee on Public Health do something at the next Legislature in order to revise that law. Seconded.

Dr. George M. Williamson: If this matter goes in from the doctors we shall not get anywhere. If it comes from a lay organization, and we support it, it may be all right. I think Minnesota has the right law, and I support it. If people are foolish enough not to be vaccinated and have smallpox, let them have it. It is hard to enforce such a law. Of course one should pity the children of ignorant, short-sighted parents, but I doubt if we as a profession can do any good by making a move along this line. I think it would be better if it came from some of the lay organizations and we supported it.

Dr. F. R. Smyth: I think this motion just shows the necessity of the public health organization. I do not agree that the efforts for public health work should come from laymen. I am fully in favor of vaccination and believe the whole thing should be in the hands of the public health department. I think in that way we can get restored the law that was abolished at the last session of the Legislature. We should try to get things through for the benefit of the people alone. I am in favor of vaccination and of the motion.

Dr. Fawcett's motion was put to a vote and carried.

SELECTION OF MEETING PLACE

The Secretary presented the following invitation from the Commercial Club of Grand Forks for the 1923 meeting:

Grand Forks, N. D., May 31, 1922.

North Dakota State Medical Association,
In Convention,
Jamestown, N. D.

Gentlemen:

The Commercial Club of Grand Forks, in behalf of the citizens of that community, extends to you a cordial invitation to hold your 1923 convention in Grand Forks. We can assure you that everything possible will be done to make your meeting a success in every way.

We fully realize the importance of your annual gathering, and in asking you to come to Grand Forks we sincerely believe that we can fulfill the conditions necessary to give you a very satisfactory convention.

Yours respectfully,
The Commercial Club of Grand Forks,
G. M. Williamson, M. D., President.
W. W. Blain, Secretary.

Dr. W. C. Fawcett moved that the invitation of Grand Forks be accepted. Seconded and unanimously carried.

Fourth Session—Friday, June 2

The fourth meeting of the House of Delegates was called to order at the Elks' Hall, Friday, June 2, 1922, at 12:00 noon, by the President.

Dr. F. R. Smyth presented the following report of the Auditing Committee, and moved that the report of the Treasurer be approved:

The Board of Councilors, having audited the Treasurer's accounts, found them correct.

F. R. Smyth, M.D.,
Chairman of Councilors.

ELECTION OF OFFICERS

Dr. Fred Ewing, Kenmare, presented the following report of the nominating committee:

President—Dr. E. P. Quain..........Bismarck
President-elect—Dr. Jas. Grassick.Grand Forks
1st Vice-Pres.—Dr. W. C. Fawcett.Starkweather
2nd Vice-Pres.—Dr. John H. Rindlaub...Fargo
Secretary—Dr. H. J. Rowe.............Lisbon
Treasurer—Dr. Wm. W. Wood.....Jamestown
Councilors, Three Years—
  Dr. G. F. Drew.................Devils Lake
  Dr. L. B. Greene..................Edgeley
  Dr. T. P. Martin..................Mayville
Councilor, Two Years—Dr. P.G.Artz Jamestown
Delegate, A. M. A.—Dr. E. A. Pray.Valley City
Alternate—Dr. A. A. Whittemore.....Bowman
Medical Defense, Three Years—
  Dr. R. W. Pence....................Minot
  Dr. H. W. F. Law........ ....Grand Forks
State Medical Examiners—
  Dr. G. M. Williamson.........Grand Forks
  Dr. Paul H. Burton..................Fargo
  Dr. W. A. Gerrish...............Jamestown

Dr. F. R. Smyth moved that the report be adopted and that the Secretary be instructed to cast the unanimous ballot of the Association for the gentlemen named. Seconded and carried.

The Secretary reported the ballot cast, and the Chairman declared these gentlemen duly elected.

REPORT OF THE COUNCIL

Dr. F. R. Smyth: The Council acted on a matter yesterday, and I think there is no reason to reconsider it, but I believe Dr. Golseth would like to take the matter up before the House of Delegates, and there is no objection on the part of the Council.

Dr. G. Golseth then presented his side of the election of officers of the Stutsman County Medical Society.

No further action was taken.

REPORT OF COMMITTEE ON MEDICAL DEFENSE

Dr. Fred Ewing presented the following report of the attorneys to the Committee on Defense:

REPORT OF THE ATTORNEYS

Minot, N. D., May 23, 1922.

Gentlemen:

Since my last report to you of May 13, 1921, with reference to the defense of malpractice cases handled by us for the Association, we beg to advise that the following cases are still pending:

1. Bart vs. Dr. A. Chernausek, Dickinson, N. D. We have heard nothing further and do not know what disposition has been made of this case.

2. Lister vs. Dr. Dash, of Reeder, N. D., pending in Adams County, N. D. We have heard nothing further in regard to this case and do not know what disposition has been made of the matter. We have arranged with Mr. Jackson, of Hettinger, to handle the case, as we are too far away, and the expense of our attending would be too great.

3. Whittey vs. Dr. H. L. Halvorson, Des Lacs, N. D. Still pending; no further proceedings taken and the case not on the calendar.

Since the last report the following cases have been finally disposed of:

Putney vs. Dr. Johns, Velva, N. D. Defended by the insurance company. Action dismissed with judgment in favor of Dr. Johns for the amount of his services.

Case pending against Drs. Pence and Pence, of Minot, wherein a verdict of $5,000 was recovered. This was appealed to the Supreme Court and affirmed, and has been settled by the insurance company.

Since the last report Dr. F. J. Roberts, of Cando, has consulted us on a threatened malpractice suit; also, we have just had come into the office a threatened case by Mrs. Strong vs. Dr. Nickerson, of Mandan. Dr. Nickerson carried insurance, but the insurance company, we are informed, is denying liability. We have written for further details and will take the matter up further, and presume that the Association will have to defend if the insurance company is not liable.

Action brought against Dr. King, of Tolley, in which we put in a defense, will probably never be tried, but will be dismissed without prejudice in favor of the doctor. If tried, we feel certain that we will defeat the plaintiff, as the action was not brought within the time prescribed by statute.

Action of Letitonen vs. Dr. Grangaard, of Douglas, N. D. This action was brought for defective reduction of fracture of the leg of a minor child, and a bad result was had. Suit was brought, and, pursuant to our suggestion and direction, Dr. Grangaard got the plaintiff to take the little girl to Bismarck, where she was placed in the hospital and re-operated on, and the leg straightened back to normal, and the doctor paid the expenses in consideration of the dismissal of the action.

Stoskoff vs. Dr. Wicklund, of Wildrose, N. D. This action was brought for $5,000 for negligence in failing to properly diagnose diabetes and diabetic gangrene. The Association defended, being associated with Messrs. Craven and Converse, of Williston, whom Dr. Wicklund employed. Depositions of the doctors at Rochester, who performed the subsequent high amputation of the leg, were taken, and the depositions were not damaging to the defendant.

At the time I attended to the taking of the depositions at Rochester, Dr. Meyerding advised me, and asked me to give the word back to the North Dakota State Medical Association, that they were not in the business of promoting malpractice cases, and did everything that they could to prevent the instituting of such cases, and would give the parties no assistance in any case where in their minds there was even a doubt in favor of the doctor.

The case was tried at Williston, and resulted in a verdict of $5,000 in favor of the plaintiff. We made a motion for judgment notwithstanding the verdict, and by the time your meeting takes place, we may have a decision on the motion. If this motion is denied, we recommend that an appeal be taken to the Supreme Court, as this is one case where the line is drawn, as well as it ever will be in any case, as to the necessity of the plaintiff in a malpractice case being required to prove the facts that the damage or disability for which damages are claimed resulted from the neglect of the doctor, by witnesses who are competent to testify to such facts, to-wit, expert medical witnesses.

In this case there were no medical witnesses who testified that the result which followed was caused or resulted from any act on the part of Dr. Wicklund, or failure on his part to do any particular act in connection with his treatment of the plaintiff, and that is the point that we desire to raise in the Supreme Court, and I suggest that the Committee take action as to the recommending of an appeal at this meeting.

The case against Dr. Arneson, of McVille, which has been tried heretofore in Nelson County, was re-tried again in March, and resulted in a second disagreement. This makes twice that the case has been tried and the jury has disagreed. It is doubtful whether the case will ever be re-tried. This case was defended by the insurance company.

Dr. Arneson, of McVille, has also been sued again in a case where he has no insurance, and which the Association is defending, being associated with Messrs. Frick and Roberts, of Lakota, who are employed by Dr. Arneson. This case was set for trial in March, but was not tried and will probably be dismissed, as the neglect claimed is against another doctor, Dr. Paulson, who was formerly associated with Dr. Arneson, but the operations complained of were performed after they had dissolved partnership, and we do not believe that they can successfully establish the case against the defendant.

Dr. Stone, of Balfour, was sued last fall, defended by an insurance company wherein he had a policy for $5,000; the case was tried at Towner, McHenry County, and a recovery against him for the sum of $10,000 was had. This was defended by the insurance company, and the Association took no part except when the case was first instituted; we then took charge of it until it was determined that the alleged malpractice occurred at a time when the doctor was insured.

Dr. R. W. Pence has just been sued by Whorley, as guardian of his minor child, for neglect in reducing a broken elbow. We have not answered as yet, but the doctor has no insurance at this time, and the Association will have to defend, and we shall prepare a defense in the case.

The expense of the Dr. Wicklund case was rather large, due to the fact that it was deemed necessary to go to Rochester to attend upon the taking of the depositions of Dr. Meyerding and Dr. Wilder, and due to the fact that the case also consumed some time to try at Williston, and that it was necessary to attend the conference of physicians at Williston and meet Dr. Wicklund there some time prior to the trial.

Respectfully submitted,

Bosard & Twiford.

Dr. Ewing: At a meeting of the House of Delegates a year ago, the House instructed the Committee on Medical Defense to establish a group insurance along the line of some of the old-line insurance companies. We have done this and have entered into a contract with the Aetna Insurance Company. We get quite a reduction on this and feel very strongly that this is going to be the most satisfactory form of insurance unless something is taken up by the American Medical Association which will come later. I understand that our treasury is gradually being depleted, and we have several cases here that have to be defended; however, we feel that the State Medical Association should not continue to defend people who are not carrying group insurance, and we unanimously adopted the following recommendation: That the Committee on Medical Defense recommends that the State Medical Defense be discontinued at the end of the present year, December 31, 1922.

We also wish to recommend that everybody who possibly can shall get into the group insurance. There are 273 members of the State Medical Association who carry the insurance, and that is a much larger percentage than we expected the first year.

The Secretary: We have just 251 active members at present, as we have had a good many cancellations recently.

Dr. Ewing: There are two or three things about the group insurance to remember: The policy cannot be cancelled by the insurance company as long as the doctor is in good standing in the State Association. The second thing is that they furnish bonds for carrying this thing up as high as it goes, and if you ever had to talk about ten-thousand or fifteen-thousand dollar bonds to carry a case to the Supreme Court, you know what it is. The chief thing is that, if you get everybody together, you can make a good fight. I move the adoption of the report. Seconded.

Dr. E. P. Quain: What is the plan for continuing those who are still in good standing?

Dr. Ewing: We shall continue to carry them until the end of the present year. The members have paid their dues to the end of this year, which carries with it insurance. It automatically stops then. The Medical Defense Committee will mail personally a letter to every member and notify him to this effect, so that he will know that it is true. We shall also enclose an application to those who have not yet applied for group insurance. We feel that, by having a large company insure the whole membership, they will make a good fight on every case, and we think we have a good plan.

Motion put to a vote and carried.

REPORT OF DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION, 1922

Dr. E. A. Pray, Valley City, presented the following report as Delegate to American Medical Association in 1922:

The last meeting of the American Medical Association in St. Louis may be considered very successful.

There were seated by the House of Delegates 122 members. The business of the meeting was conducted very expeditiously and efficiently by Dr. F. C. Warnshuis, the speaker. Your delegate was placed on one committee on Rules and Order of Business.

Dr. Warnshuis, vice-speaker, occupied the chair in the House of Delegates by reason of the death of Dr. Dwight H. Murray, of Syracuse, N. Y., who was the regularly elected speaker of the House.

There has been a good deal of consideration given by the general fellowship to the double representation in the House of Delegates by the reason of the Sections each having representatives in the House. Each component part registered its objection by a unanimous vote, requesting that the representatives continue as heretofore.

One amendment to the constitution now reads that its trustees and the ex-presidents of the Association shall be ex-officio members of the House of Delegates without the right to vote.

One resolution was introduced making the secretary editor, at a salary of $10,000 per annum, responsible only to the House of Delegates. This resolution was killed in the House through a statement of one of the trustees showing the ruling whereby the funds of the Association are dispensed by the Board of Trustees.

A great deal of discussion was given to the general objection that has been raised to the methods of pay clinics, diagnostic clinics, and group practice, a statement being made that much that is unethical is being put forth by these different groups.

The House condemned the action of the Red Cross in assuming to direct so many lines of work interfering with general public health activities, and it was advised that the Red Cross confine itself to the work of relief of disabled service men in hospitals and homes.

It was proposed to issue a lay magazine. A report was not made, but a conference was arranged for the purpose of general discussion.

The question of defense of indemnity and malpractice suits has been under consideration by the Board of Trustees, though no definite plan has yet been worked out, but it is believed that eventually a successful plan may be put into operation.

A field secretary has been employed.

The narcotic proposition was thoroughly discussed, and very little was done to remedy the indignities now endured by the medical profession by reason of the officiousness of the governmental agents in charge of the matter.

An effort is being made to restrict those beginning the practice of specialties to a first-class preliminary preparation, and to condemn those who enter the practice of a specialty without such preparation. Recommendation has been made that only those who have taken such postgraduate studies as have been recommended shall be eligible to the practice of any special branch.

The under-graduate medical proposition is a serious one, in that the country greatly needs general practitioners, and the class A medical schools are unable to receive a sufficient number into the courses to satisfy the needs.

It was resolved that the Government issue fermented spirits in original packages to the medical profession.

Health insurance was condemned.

The Sheppard-Towner law was condemned as being not in the interest of public welfare, as being an imported socialistic scheme not suited to our form of government.

The selection of the meeting place in 1923 was a close one, finally ending in San Francisco being chosen as having the best facilities to offer, inasmuch as they can put every meeting under one roof.

The election of Dr. Ray Lyman Wilbur as president-elect was very close, and running neck to neck with the candidate from Missouri—Dr. Jackson.

There were 5,174 registered at the St. Louis meeting.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE ASSOCIATION

First Day—Thursday, June 1

Morning Session

The Association was called to order in the Elks' Hall, Jamestown, Thursday, June 1, 1922, at 9:40 A. M., by the President, Dr. H. E. French, Grand Forks.

Dr. H. E. French delivered the President's Address entitled "Medicine and Society: A Few General Relations."

The President appointed a Nominating Committee consisting of Drs. Fred Ewing, Paul H. Burton, and H. J. Friesen.

Dr. John A. Pratt, Minneapolis, presented a paper entitled "Operative Treatment of Chronic Mastoiditis," which was discussed by Dr. John H. Rindlaub, Fargo, and the discussion closed by Dr. Pratt.

Dr. August Eggers, Grand Forks, read a paper entitled "Some Remarks Regarding the Operative Treatment of Cancer of the Stomach," and the same was discussed by Dr. Wm. H. Witherstine, Grand Forks; Dr. A. W. Ide, St. Paul, Minn.; Dr. E. P. Quain, Bismarck; and, in closing, by the essayist.

Dr. John Crawford, New Rockford, presented a paper entitled "A General Practitioner's Synopsis of Syphilis," which was discussed by Dr. F. R. Smyth, Bismarck; Dr. W. R. Ramsey, St. Paul, Minn.; Dr. E. A. Pray, Valley City; Dr. A. W. Ide, St. Paul, Minn.; and, in closing, by Dr. Crawford.

Dr. W. M. Hotchkiss, Fargo, read a paper entitled "The Endocrines in Neurology and Psychiatry." This paper was discussed by Dr. W. A. Jones, Minneapolis, Minn.; Dr. John A. Pratt, Minneapolis, Minn.; Dr. W. R. Ramsey, St. Paul, Minn.; and the discussion was closed by Dr. Hotchkiss.

As this concluded the morning's program, the Association adjourned to reconvene at 2:00 P. M.

First Day—Afternoon Session

The second session of the Association was called to order at the Ruby Theatre, Thursday, June 1, 1922, at 2:20 P. M., by the President, Dr. H. E. French, Grand Forks.

Dr. Archibald D. McCannel, Minot, presented a paper entitled "Areocele of the Brain, with the Report of a Case" (lantern slides). The paper was discussed by Dr. H. W. Miller, Casselton; Dr. C. E. Spicer, Valley City; and the discussion was closed by Dr. McCannel.

The Association then adjourned to the Elks' Hall for the continuation of the program.

Dr. Walter R. Ramsey, St. Paul, Minn., presented a paper on "The Most Important Measures in the Protection of Children Against Tuberculosis." The paper was discussed by Dr. L. G. Lamont, Dunseith; Dr. James Grassick, Grand Forks; and the discussion was closed by Dr. Ramsey.

Dr. John Ewing, Kenmare, read a paper on "The Closed Treatment of Empyema," and the same was discussed by Dr. Kent E. Darrow, Fargo.

Dr. A. W. Ide, St. Paul, Minn., read a paper on "Traumatic Surgery and Compensation," which was discussed by Dr. George M. Williamson.

Dr. Floyd O. Woodward, Jamestown, read a paper entitled "Referred Pain from Affections of the Thoracic Viscera." The paper was discussed by Dr. Paul H. Rowe, Minneapolis, Minn.

Dr. John E. Engstad, Grand Forks, presented a paper entitled "Gas Cysts of the Abdomen."

Dr. Hugh A. Altnow, Mandan, read a paper entitled "Heart Disease; Its Early Recognition," which was discussed by Dr. W. H. Bodenstab, Bismarck.

At the close of the program Dr. Day addressed the Association briefly in behalf of the Veterans' Bureau.

As this concluded the program for the afternoon, on motion the Association adjourned at 5:40 P. M. to reconvene at 9:00 A. M. Friday.

Second Day, June 2—Morning Session

The Association was called to order at the Elks' Hall on Friday, June 2, at 9:40, by the President, Dr. H. E. French.

Dr. Paul H. Rowe, Minneapolis, Minn., presented a paper entitled "The Irritable Colon," and the paper was discussed by Dr. J. O. Arnson, Bismarck, and the discussion was closed by the essayist.

Dr. Emil S. Geist, Minneapolis, Minn., read a paper on "The Treatment of Club Foot, Congenital and Acquired." This paper was discussed by Dr. William W. Wood, Jamestown.

Dr. Carl C. Cowin, Jamestown, read a paper entitled "Earache," which was discussed by Dr.

G. J. Gislason, Grand Forks; Dr. Emil S. Geist, Minneapolis, Minn.; Dr. Fred Ewing, Kenmare; and the discussion was closed by Dr. Cowin.

Dr. E. P. Quain, Bismarck, read a paper entitled "Chronic Duodenal Obstruction," which was discussed by Dr. Fred Ewing, Kenmare.

Dr. Paul H. Burton, Fargo, presented a paper on "Acute Intestinal Obstruction." This paper was discussed by Dr. E. P. Quain, Bismarck.

Dr. Albert M. Brand, Bismarck, presented a paper on "The Responsibilities of the Obstetrician," and the same was discussed by Dr. George B. Ribble, La Moure; Dr. Carl L. Brimi, Cooperstown; Dr. Helen K. Wink, Jamestown; and the discussion was closed by Dr. Brandt.

PUBLIC HEALTH WORK

At the conclusion of the program, Dr. Robert Olsen of the Public Health Service addressed the Association as follows:

It seems too bad to inflict upon you anything relating to public health at the end of a two-days' session of the Association.

I feel like the boy who fell into the water. A passerby leaned over the bank and asked, "How did you come to fall in, little boy?" and the boy replied, "I didn't come to fall in, I came to fish." (Laughter.) I came to listen and learn, but I wish to tell you about a case of malnutrition. You have heard a good deal about this in the last few days, and this patient is familiar to you all, for it is the State Board of Health. The etiology is like the symptoms,—lack of animation. The symptoms are these: The patient is apathetic, and has apparently been so for a long time. The pulse rate, the blood pressure, the temperature, and most of the symptoms and signs are subnormal. Apparently there is very little interest on the part of the patient in anything going on about him.

As to the past history: This condition has been evident for a number of years. Apparently physicians have looked at the patient and made a diagnosis, but instituted no treatment. The prognosis is excellent. I feel very optimistic about the recovery, provided proper treatment is instituted.

The treatment, to my mind, is simple and will be effective when the people understand what is needed. The State Board of Health as constituted at present reminds me very much—and whenever I think of the problem I can see Dr. French going down a lonely road carrying a two-gallon bucket of gasoline. You may be interested to know where he is going. You ask, "Where are you going?" He says, "I am simply looking." "What for?" "A car to put the gasoline in." (Laughter.) That really represents just what is being done in this state in a health way. The Legislature has appropriated sufficient money to buy two gallons of gasoline, but no car to put it in. I think the State Board would be thankful for a flivver, instead of a Cadillac. After its value has been demonstrated in preventing sickness and death, perhaps they might give us a Dodge later on. I am of the opinion that excellent assistance can be obtained, not only from this organization, but from many others in the state.

I am aware that you gentlemen have to do with curative medicine, that you cannot afford to turn away from your work and indulge in public health work without being adequately compensated. At the same time, I think you can do much for this work with which you are familiar and with which I believe you are in sympathy, and I do not believe there is an organization in North Dakota better fitted to give an endorsement to this movement than the State Medical Association. I believe the Legislators will naturally turn to their physician friends when they want information. I cannot conceive of them looking to the bricklayer, the osteopath, or the chiropractor when they are searching for information regarding a public health movement. I think they will turn to their physicians to find out whether it is based on a sound plan. Therefore, I am anxious to get the assistance of the physician in the plan for public health, which we need so badly.

I cannot go into details, but I wish to impress upon you the value of standing shoulder to shoulder. I think the great mistake, not in this state alone, but in many other states, is failure to co-operate, to stand shoulder to shoulder and fight out the thing together. We are in the habit of discussing—and cussing—the chiropractors and other cults, but have you ever thought how effective a force we could muster up if we had a committee appointed to go into adjoining states and find out what they are doing? You may have heard a story of effective co-operation. Do you remember the story of the old darkie down South who was an expert with the little whip? He was so expert that he could flick and touch objects all around as he drove along the road. He had a boss who was very proud of his prowess and showed him off whenever opportunity arose. One day a guest came in, and the boss wanted Mose to show off his prowess with the whip. He said, "Can you touch the fly over there, Mose?" "Yassir, Boss," said Mose, and flicked off the fly. They drove a little further on, and the boss said, "Mose, can you flick off a leaf from that tree?" "Yassir, Boss," said Mose, and he flicked off the leaf without moving a branch of the tree. A little further on they passed a hornets' nest, and the boss said, "Mose, can you touch some of those hornets over there?" Mose looked and turned around and said, "No, sir, Boss; a fly is a fly, and a leaf is a leaf, but dem hornets—Boss, dey's organized!" (Laughter and applause.)

Gentlemen, that is what we can do in North Dakota. With your moral support and with a few men we can put this public health organization across.

I thank you. (Applause.)

Dr. French: I do not feel like adjourning the meeting without saying that I appreciate your feeling toward me and the work I am trying to do in the health work at present. I cannot let the moment go without expressing my thanks to the essayists and all the committees who have helped to make this a good program. I am deeply grateful.

On motion, duly seconded, the Association adjourned *sine die*.

DISTRICT AND COUNTY ROSTER

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Carr, Andy M............Minot
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Kermott, L. H.............Minot
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McCannel, Archie D.......Minot
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Moffatt, George ....Crosby
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Newlove, J. T..............Minot
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Kjelland, A. A..........Hatton
Knutson, O. A...........Buxton
Little, R. C...........Mayville
Martin, Thomas P......Mayville
Savre, M. T..........Northwood
Vinje, Syver ....Hillsboro

ALPHABETICAL ROSTER

Aaker, O. A................Velva
Allen, R. W..............Towner
Almklov, Lief......Cooperstown
Altnow, H. O...........Mandan
Anderson, C. O.....Willow City
Arneberg, J. G......Grand Forks
Arnson, J. O..........Bismarck
Arneson, A. O...........McVille
Arzt, P. G............Jamestown
Awty, Wm................Fargo
Aylen, J. P................Fargo
Aylen, W. C. ....Mandan
Backus, A. C..............Wales
Baer, DeWitt ....Braddock
Bailey, Fred H.............Fargo
Baillie, W. F............Hunter
Bakke, Hans ....Lisbon
Baldwin, W. P.....Stevens, Minn.
Barrette, J. H...........Driscoll
Bayard, Walter ....Fargo
Bean, O. G.............Walcott
Beek, R. H. ....Lakota
Beeson, H. B.......Grand Forks
Bennett, C. E..............Aneta
Benson, O. T........Glen Ullin
Bodenstab, W. H.......Bismarck
Bowen, J. W...........Dickinson
Boyum, P. A.............Harvey
Bradley, W. C. ...... Marion
Brandes, H. A..........Bismarck
Brandt, A. M..........Bismarck
Brenckle, J. F. .... Kulm
Brigham, F. O.............Stanley
Brimi, C. L........Cooperstown
Brown, D. F.........McClusky
Brown, W. G............Fargo
Brugman, F. A............Minot
Bunting, F. E............Mandan
Burrows, F. N..........Bathgate
Burton, P. H.............Fargo
Bush, A. D. ....University
Buzzell, C. P...........Cleveland
Cain, W. T..........Underwood
Call, A. M. ....Rugby
Callander, C. N. .... Fargo
Callestrom, G. W...Northwood
Campbell, Robt. D.Grand Forks
Carpenter, Geo. A...........Fargo
Carr, Andrew.............Minot
Carr, Andy M. .... Minot
Carter, J. A............Warwick
Carter, P. B. ....Parshall
Chernausek, Sam.......Dickinson
Christensen, W. .....Lidgerwood
Christie, J. F. ...... Burlington
Clark, Horace........Wheatland
Clark, I. D..............Harvey
Clark, S. B............Buffalo
Clay, A. J. .... Fargo
Claybough, W. R.......Grenora
Coffin, H. H.............Drake
Constance, G. M....Donnybrook
Countryman, J. E........Grafton
Cowin, C. C..........Jamestown
Craise, O. S.............Towner
Critchfield, L. R. .... Kenmare
Crawford, John..New Rockford
Crosby, E. B. ....Oriska
Crossette, G. D.......Richardton
Culbert, M. H.........Courtenay
Cuthbert, W. H....... Hillsboro
Dach, J. L. .... Reeder
Darrow, F. I.............Fargo
Darrow, Kent E..........Fargo
Davis, H. A..........Dickinson
Dean, A. C........Grand Forks
Deason, F. W............Grafton
De Puy, R. G.........Jamestown
De Puy, T. L..........Jamestown
Devine, J. L...............Minot
Dixon, O. C. .... Fairdale
Dochterman, L. B. .... Williston
Donker, A. E..........Sykeston
Drew, G. F. ...... Devils Lake
Durkee, C. A..........Abercombie
Durnin, Charles......Westhope
Durnin, G. A...........Bottineau
Earl, H. D. .... Jamestown
Eastmas, L. G...........Hazen
Eggers, Aug........Grand Forks
Emert, H. F................Sarles
Engesather, A. D.........Brockett
Engstad, J. E........Grand Forks
Erenfeld, H. M...........Minot
Evans, R. M. .... Minto
Ewing, Fred..........Kenmare
Ewing, John..........Kenmare
Fawcett, W. C......Starkweather
Ferguson, F. W. ....Kulm
Field, A. B..........Forest River
Fisher, A. M............Bismarck
Fisher, Stephen.......New Salem
Fitzmaurice, E. S. ....Mohall
Flaten, A. P.......Grand Forks
Flath, Milford G.........Stanley
Floew, A. T..............Harvey
Fortin, H. J..............Fargo
Fortun, Olaf......Grand Forks
Foss, J. O. ....Cavalier
French, H. E. ..... Grand Forks
Friesen, H. J.........Grand Forks
Frogner, G. S............Mayville
Fuller, J. D. .... Plaza
Gaebe E. C. .... Harvey
Gaebe, O. C. ....New Salem
Galbraith, J. A..........Cavalier
Gerrish, W. A..........Jamestown
Gislason, G. J.......Grand Forks
Glaspel, C. J. .... Grafton
Glaspel, G. W. .... Grafton
Glasscock, T. J...........Finley
Golseth, G. ....Jamestown
Gordon, W. L.........Washburn
Goss, E. L............Carrington
Grace, J. B. .... Zeeland
Grangaard, H. O.........Douglas
Grant, Geo. ....Wishek
Grassick, Jas........Grand Forks
Greene, E. E. ....., Westhope
Greene, L. B............Edgeley
Greenman, N. H......Fairmont
Greeves, J. P..........Sherwood
Griebenow, F. F.........Bismarck
Griffin, J. H..............Ryder
Gronvold, A. C. ... Fort Ransom
Gronvold, F. O.............Fargo
Grogan, J. S. ....Flaxton
Guest, A. W..........Jamestown
Gunderman, H. R......Monango
Gustuson, E. V............Fargo
Haagenson, E. C...Grand Forks
Hagen, E. J.............Williston
Halldorson, M.B..Winnipeg, Can.
Halverson, H. L........Des Lacs
Hamilton, E. E.....New Leipzig
Hamilton, J. S. ...... Bathgate
Hancock, E. W..........Carpio
Hanna, J. F................Fargo
Hanson, G. C.............Minot
Harris, C. B...........Pembina
Hartman, E. C..Brandenburg, Ky.
Hayhurst, J. O. ...... Rolette
Healy, H. H.........Grand Forks
Heimark, A. J..............Finley
Heimark, J. J. .... Fargo
Hendrickson, Gilbert..Enderlin
Hetherington, J. E...Grand Forks
Hill, S. W. ....Regent
Hillis, S. J. ....Berthold
Hjelle, C. A............Portland
Hoff G. C..........Tower City
Hofman, P. E............Fargo
Holt, G. H. ...... Jamestown
Horsman, A. T.......Devils Lake
Hotchkiss, W. M. ...... Fargo
Hougen, Hans ....Fargo
Hubbard, F. G........Cogswell
Hunt, C. E.........Grand Forks
Huntley, H. B.........Leonard
Irvine, V. S. .... Lankin
Ivers, M. U.............Christine
Jackman, J. C............Minot
Jacobs, G. C..........Wahpeton
James, J. B................Page
Jelstrup, Christian....Petersburg
Johns, S. M...............Velva
Johnson, J. A..........Bottineau
Johnson, P. O. C...Watford City
Joistad, A. H............Fargo
Jones, W. D.........Devils Lake
Kaess, A. J. ....Fargo
Kermott, L. H.............Minot
Kerner, C. A............Tuttle
King, C. J............Columbus
Kirkham, J. H..........Langdon
Kittleson, J. A.............Tolley
Kjelland, A. A...........Hatton
Knapp, H. G..............Minot
Knutson, O. A...........Buxton
Kolb, F. K............Granville
Lamont, J. G.............Dunseith
Lancaster, Blake ....Wahpeton
Lancaster, W. M.....Wahpeton
Landry, L. H..........Walhalla
Lang, A. A. J...........Sanborn
Lang, F. F............Lansford
Larson, G. A. .... Fargo
LaRose, V. J...........Bismarck
Law, H. W. F........Grand Forks
Law, I. N. ....Halliday
Leavitt, R. R. ....Carson
LeBien, E. A..........McHenry
Leedahl, O. S. .... Stanley

Lemieux, Darie	Leeds
Lewis, T. H.	Fargo
Limberg, A. M	Fargo
Link, J. J.	McVille
Lipp, G. R	Bismarck
Little, R. C	Mayville
Lodge, F. B	Steele
Lohnbauer, E	Lakota
Lommen, C. E	Fordville
Longstreth, W. E	Kensal
Lyle, W. D	Havana
Lynde, Roy	Ellendale
MacDonald, A. C	Valley City
MacDonald, A. W	Valley City
MacGregor, Murdock	Fargo
Mackay, A. R	Bottineau
MacKenzie, J. Ross	Carrington
MacKenzie, J. Roy,	New Rockford
MacLachlan, Chas.	New Rockford
Maercklein, E. H.	Ashley
Maercklein, F. W	Oakes
Marsden, C. S	Grand Forks
Martin, Thomas P	Mayville
Massalgia, A.	University
Matthaei, D. W	Fessenden
McCannel, A. J	Minot
McCannel, Archie D	Minot
McDonnell, R. H	Hankinson
McEssey, E. W	Fargo
McGurren, C. J	Devils Lake
McIntosh, G. J	Devils Lake
McLean, Neil	Devils Lake
McLean, R. N	Gilby
McMurtry, W. C	Lisbon
McQueen, W. W	Langdon
Meadows, R. W	Sheyenne
Melzer, S. W	Woodworth
Meyers, L. W.	Fargo
Miller, H. W	Casselton
Miller, J. P	Grand Forks
Moffatt, George	Crosby
Monteith, George	Hazelton
Moore, J. H.	Grand Forks
Moore, W. H.	Valley City
Moreland, J. W	Maxbass
Morris, A. C	Fargo
Movius, A. H	Jamestown
Mulligan, T	Grand Forks
Munier, H. J	Oakes
Murray, K. M	Scranton
Nachtwey, A. P	Dickinson
Nelson, W. P	Knox
Nesse, S. A	Nome
Nestos, P. A	Minot
Newlove, J. T	Minot
Nichols, A. A	Fargo
Nichols, Wm. C	Fargo
Nicholson, A. S	Williston
Nicholson, E. G	Lawton
Nickerson, B. S	Mandan
Nolte, W. C	Jamestown
Nutting, W. W.	Marmarth
O'Brien, O. P	Egeland
O'Brien, T	Wahpeton
O'Keefe, Henry	Grand Forks
Oftedahl, Arne	Fargo
Oftedal, Axel	Fargo
Oftedal, Sverre	Fargo
Oftedal, Trygve	Fargo
Olson, C. T.	Wyndmere
Opstedal, J. A	Hampden
Orcutt, A. H.	Kenmare
Ostrander, A. J	Enderlin
Owen, W. R.	Oaks
Owenson, H. A	Grace City
Panek, A. T.	Milton
Parker, L. V.	Minot
Parker, R. M.	Portal
Patterson, T. C	Lisbon
Paxman, D. G	Cavalier
Peake, F. Margaret	Grand Forks
Peake, Francis	Jamestown
Pence, R. W	Minot
Perkins, Geo. A	Dickinson
Peterson, O. T	Northwood
Plane, J. F	Edgeley
Platou, C. H.	Litchville
Platou, L. S	Fargo
Porter, W. H	Calvin
Pray, E. A	Valley City
Pryse, T. S	Dawson
Quain, E. P	Bismarck
Quain, Fannie D	Bismarck
Rainville, S.	Crosby
Ramstad, N. O	Bismarck
Rankin, J. A	Carrington
Ransom, E. M	Minot
Ray, R. H	Garrison
Reedy, P. G.	Casselton
Ribble, George B	La Moure
Rice, C. P.	Wahpeton
Rindlaub, Elizabeth P	Fargo
Rindlaub, John H	Fargo
Rindlaub, M. P	Fargo
Ritchie, C. K	Velva
Roan, M. W	Bismarck
Roberts, F. J	Cando
Robertson, C. W	Park River
Robinson, C. O	Bismarck
Rogers, Joseph	Alexander
Rollefson, C. O	Ambrose
Rothnem, T. P	Fargo
Rowe, H. J	Lisbon
Ruediger, E. H	Bismarck
Ruud, M. B.	Grand Forks
Ryan, D. E	Hankinson
Sand, Olaf	Fargo
Sarchette, I. A.	New England
Sasse, E. G	Lidgerwood
Savre, M. T.	Northwood
Scannell, E. J	University
Schipfer, L. A	Bismarck
Schierbaum, A. F. E.	Beach
Schneider, J. E	Bowman
Scott, R. A	Crystal
Shepard, G. P.	Jamestown
Shortridge, W. R	Flasher
Short, P. E.	Adams
Shoregge, C. W.	Bismarck
Sihler, W. F	Devils Lake
Simon, John	Napoleon
Sinclair, A. J	University
Skelsey, A. W	Fargo
Skovholt, H. T	Williston
Smith, C. C.	Stanton
Smith, Clinton	Devils Lake
Smith, J. A	Minot
Smith, J. C	Thompson
Smith, L. G.	Mandan
Smyth, F. R	Bismarck
Spanare, C. I.	Milton
Spellman, G. H.	Mandan
Spear, A. E	Belfield
Spicer, C. E	Valley City
Stackhouse, C. E	Bismarck
Steele, D. C	Fairmount
Steeves, E. O	Rugby
Stickney, V. H	Dickinson
Stixrud, T. M.	Litchville
Stone, E. C	Balfour
Strauss, F. B	Bismarck
Stromberg, G. E	Langdon
Suter, J. C	Grafton
Swartout, E. F	Sykeston
Swenson, A. W	Bisbee
Taintor, Rolfe	Fargo
Taylor, J. D	Grand Forks
Thelan, W. P	Wilton
Thompson, A. Y	Larimore
Thompson, R. C	Wilton
Timm, J. F	Makoti
Titzell, T. C.	Jamestown
Tompkins, C. R	Oberon
Tronnes, N.	Fargo
Truscott, J. R	Binford
Van de Erve, H	Carrington
Van Houten, J	Valley City
Verrett, B. D	Rolla
Vigeland, J. G	Brinsmade
Vinje, Syver	Hillsboro
Voss, Carl	Hettinger
Waas, Chas	Neche
Wadel, K. A	Fargo
Wagar, W. D	Michigan
Waldren, H. M	Drayton
Wands, E. E	Lisbon
Wanner, W. B	Wimbledon
Watson, E. M.	Fargo
Weed, F. E	Park River
Weible, R. E	Fargo
Welch, W. H	Larimore
Welker, A. J	Max
Werlich, R. E.	Hebron
Westeen, A. A	Grand Forks
Westervelt, A. E.	Bowden
Westley, M. D	Cooperstown
Weyrens, P. J	Sheldon
Wheeler, H. M	Grand Forks
Wheelon, F. E	Minot
Whittemore, Arthur A.	Bowman
Wicklund, C. A	Wildrose
Wicks, F. L	Valley City
Widmyer, J. P.	Rolla
Wiig, I. C. J	Wahpeton
Williamson, Geo. M.	Grand Forks
Wilson, W. C	Grand Forks
Winchester, H. E	Hazelton
Windell, H. C	Williston
Wink, Helen K	Jamestown
Witherstine, W. H	Grand Forks
Wolverton, Ben	Hannaford
Wolverton, W. C	Linton
Wood, W. W	Jamestown
Woodward, F. O.	Jamestown
Woutat, H. G	Grand Forks
Wylie, A. R. T	Grafton
Yeomans, I. N.	Minot
Zimmerman, S. A	Valley City

PRESIDENT'S ADDRESS—MEDICINE AND SOCIETY: A FEW GENERAL RELATIONS

By H. E. French, M.D.

GRAND FORKS, NORTH DAKOTA

Of the many subjects that present themselves for discussion at this time, I have chosen to speak of some of the more general relations of the profession to society.

Last fall a man with no medical training whatever, but with the elements of salesmanship, personality, method, and assurance that appeal to the masses, established an office in one of the towns of Grand Forks county. In fact, he was invited to do so by the business interests of the town, and it is said he has been given the free use of an office. He has probably violated every provision of the medical practice act, to say nothing of public health laws, but when arrested for the misdemeanor, he found an attorney with political ambitions willing to defend him, and at the trial a jury promptly brought in a verdict of not guilty. The readiness of juries to return verdicts in favor of plaintiffs, often most unjustly and often in large amounts, when physicians are sued for damages, has been pointed out many times. Irregulars like the chiropractor and the osteopath, generally licensed by their own boards and with standards of education and training far inferior to regular medical requirements, seem to flourish. One irregular school at Davenport, Iowa, claims an attendance of 3,000 students. The patent medicine business still seems to flourish; in fact, it recently received a whitewash in a book[1] published by so good a house as the Century Company. Unseemly rivalry and jealousy are all too common in the profession, involving men of every specialty and degree. Politics, where there should be only professional interest, not infrequently mars our associations from the lowest to the highest. The bogy of state medicine looms larger every day. Discouraging examples could be multiplied almost indefinitely. If one were inclined to be pessimistic, he might perhaps conclude that human nature is indeed totally depraved and that the outlook for medicine is hopeless.

From this point one might go on to speak of the ignorance of the laity regarding health, hygiene, and medicine, of ingratitude, jealousy, and foolish fears of the "Patent Medicine Mind." It could be pointed out that very often people of note in literature, education, the law, the ministry, and other professions, are as bad as the rest; that they frequently take up with some patent medicine, cancer cure, or fake system for the purification of water or air, or become the disciples of some pseudoscience or of some irregular system or practice.

Or one might point out some of the weaknesses in the profession and its members that account, in some measure at least, for the attitude of the public; for example, the lack of knowledge of psychology, normal physiology, and of slight variations from the normal, which, if possessed, might enable the conscientious physician to listen patiently to and really help and comfort the patient who only thinks he is ill, or who, as we sometimes foolishly or in pleasantry say, is not "sick enough to be interesting"; for example, also, the lack of salesmanship even in the best sense that perhaps must characterize a dignified profession, not that I should like to see us do any personal advertising, but that I think that a state association might well have a vigorous committee on popular health education.

Interesting and important as these considerations are, and much as they need to be given careful thought by the profession, I shall leave them with simple mention and refer you to the writings of others.

In the few minutes of your time that I should take at this point of the program, permit me, briefly, to discuss three other considerations, slightly different, and yet related to these introductory remarks:

1. The situation is not so bad as it might seem. To begin with, there is nothing new about any of the things that might be thought of as disturbing us. There have always been lack of knowledge, lack of appreciation, jealousies, and politics. It takes but a slight knowledge of the history of medicine to realize that certain generations before us have presented worse situations in regard to sects, false theories, and commercialism. While we have not risen above these things, at least the profession and the world have long survived them. Moreover, not only has scientific medicine made advancement that compares most favorably with all other lines of progress, in fact that gives it a place of leadership

in modern development, but there are many other points of encouragement.

The character and educational qualifications of the men going into the profession were never so high as they are today. Not only has instruction in medical schools been greatly improved, but the attitude towards its support has changed enormously and for the better. In his presidential address before the American Medical Association, in 1900, Dr. W. W. Keen[2] spoke of the rising tide of gifts and endowments for colleges, theological schools, hospitals, museums, and libraries, and he pointed out that but very little of the gifts of that time went to medical schools. Twenty-two years ago, as Dr. Keen noted, medical schools were for the most part conducted by joint-stock companies for the benefit of the faculties. Schools were supported by students' fees; affiliations with universities were nominal. Today, as we all know, many medical schools have large endowments; Johns Hopkins University recently received a gift of $6,000,000 from the Rockefeller Foundation for the School of Hygiene.[3] State university medical schools receive large appropriations. Of sixty-nine medical schools, only 26.9 per cent of the average income was obtained from students' fees last year.[4]

The number of hospital beds in the United States has been increased more than 50 per cent in the last seven years, not counting the government hospitals, sanatoriums for the insane, the tuberculous, and the like.[5]

Druggists tell us that the patent medicine business is not at all so good as it was twenty-five years ago, and that it can never come back.

One result of the war has been that the government had to maintain enormous hospital services with a large personnel of physicians and nurses for the care of disabled soldiers. The object lesson is striking. Most State Boards of Health have budgets that are much larger in 1922 than they were ten years ago, in some cases many times larger. Industries and life insurance companies realize as never before what medical science can do, and they are acting accordingly. Great voluntary organizations like the General Education Board, the International Health Board, and the Red Cross, are handling enormous sums of money to further medical education, conduct research, or minister to the immediate needs for medical and nursing care.

Better popular books and articles are being written and read. The students of Barnard College, giving a little serious thought to curriculum-making themselves, recently decided that one large course, six semester hours, one-fifth of the freshman work, should be a required course in human biology.[6] Infinitely better instruction is being given in physiology and hygiene in the public schools in connection with the work of State Boards of Health and school nursing.

I am aware that foolish steps are being made, but we should remember that these activities are in the hands of the friends of scientific medicine, not in the hands of the friends of patent medicines or of any sect or commercial interest. Twenty-five years of the better thought and teaching now going on will bring us a generation with a very different point of view toward many of the problems that now vex us. The German schoolmaster's proverb, "Permit me to educate two generations and I will change the world," is true.

My conclusion for this part of the discussion is that scientific medicine has never stood so high in popular estimation as it does today. The millennium is not here, but we may well be encouraged.

2. For the good of both the profession and society, probably nothing is more important at this time than for medical men to give serious study to psychology and sociology.

Medicine is a profession, and not only a profession but an altruistic one. We claim this, and we are so accepted by the most thoughtful and the best informed. The typical medical man is among the least commercial of men. He gladly does a great deal of charity work, probably much more than the average man of any other profession. Not only does he not wish to see any prevalence of disease, illness, or accident, but he desires for society as perfect protection from communicable diseases as science and the state can provide. He wants conditions such that no one will be neglected, but that every man, woman, and child, no matter what his or her social or financial standing, will be able to receive good medical care.

At the same time the medical man does not at all believe in state medicine to the extent that it is advocated by some, to the extent that it exists in some countries at present, or in certain forms that are being agitated in one place or another in this country. In the year just closing, resolutions have been adopted in many societies, —city, county and state,—from Maine to California. There has been a great deal of discussion, some of it wise and judicial, some of it hysterical, exaggerated, and shortsighted. As this is being written, plans seem to be on foot for a battle royal at the meeting of the A. M. A. in St. Louis, in large part at least, ostensibly over the question of state medicine.

Let us remind ourselves, however, that we already have no small amount of state medicine. We have medical education largely supported by the state. We have state regulation of licensure, or the right to practice. We have state-supported institutions for a variety of conditions in which society as a whole has a large interest, or in which proper care is prohibitive on account of the cost for the individual,—for example, sanatoriums for those suffering from tuberculosis, leprosy, or trachoma, and hospitals for the blind, the deaf, the crippled, the feeble-minded, and the insane. Public Health Laboratories supported by city or state are common. The conception of public health work has changed in forty years from boards of estimable physicians who were supposed to give advice upon occasion to city councils or state legislatures, to vigorous departments handling large budgets and carrying on extensive efforts to prevent disease and death. It has been estimated[7] that there are over 10,000 whole-time technical and semitechnical workers engaged in public health work in the United States. Voluntary agencies add 6,000 more. Approximately $35,000,000 is spent each year by states, cities, and counties for public health work.

The results of public health work are well known and need not be elaborated at this time. Let us mention only the example of New York City, where the death-rate has been reduced in fifty years from 28 to 11 per hundred thousand.

So far, I think, we shall all agree that state medicine is right and necessary. Medical education, licensure, and certain big lines of public health work must certainly be provided for by the state.

We must realize, too, that whether we like it or not, state medicine, in some of its forms, is bound to increase. No one can say what the limits will be, but all must grant that there will be a change. Just as practice today is different from practice twenty-five years ago, another twenty-five years will develop still greater changes. Speaking of public health work and preventive medicine, Dr. L. F. Barker,[8] of Johns Hopkins University, in a conference recently said, "Many in attendance at this conference are of the opinion that within a comparatively short time public health activities will far exceed those of today, both in intensity and in range. They feel sure that in this country, at least, the environment will speedily be made more wholesome, that the mass of the people will be led up the scale of personal hygiene and efficiency, and that, possibly, also, the germ plasm of Americans may be gradually improved."

For myself, I am conservative. I think there are decided limits as to what should be attempted and what can be accomplished to advantage by the state. What these limits are it is not necessary to define. I do not fear evolution, however, and time may well modify the point of view of both society and the profession. I do fear class legislation, too ambitious programs in the new and the untried, programs under the wrong control, and the like.

If, then, we already have state medicine to a large degree and must expect still further socialization of our work, what should be our attitude? We may oppose any change wildly, as some do. We may exaggerate and call names, we may invoke our class interest against other class interest, but we shall do no good. Not enjoying any too much of popular esteem, if our attitude is such that people will feel that in illness and misfortune they are our victims, and not that we are at all times their friends; if we put ourselves in the position of aristocrats resisting any change because it will hurt our business, not only shall we accomplish nothing, but experiments full of mistakes and disadvantages alike to us and society are sure to be tried.

If, however, we meet society in its gropings with half the understanding that I am sure we feel of altruism, we may prevent many blunders.

Does the British plan of health insurance against sickness have defects? It has, and they are defects more important to society as a whole than to the profession of medicine. It is the same with our own state compensation act and many another plan, both Federal and State, either enacted or proposed. What are these defects? Let us understand them for our own satisfaction, and then let us help to mould both public opinion and legislation aright.

An example close at hand is our own state plan for school nursing. At its best, no similar amount of money spent by a district or a county could possibly do so much good in locating and having corrected many a remediable defect in future citizens, in preventing the spread of communicable diseases, in the dissemination of public health education, and the right attitude toward scientific medicine. I am aware it is being attempted with but slight supervision, that nurses doing this work vary greatly in training, personality, and judgment, and that altogether many mistakes are being made. It would be short-sighted, indeed, however, to oppose the plan or to view it only with jealousy. Let us rather study it; if it needs supervision, let us help bring that about. Let us, as individuals, perhaps, and surely as local societies and groups, instruct the nurses and direct the work, not simply by bossing and scolding, but by showing what should be the proper point of view and the proper field for their work.

It would be worth while for a committee in each district society to make a careful study each year of legislation, proposed or enacted, affecting medicine or looking in any way toward its socialization. This might well be the subject of one evening's program. A committee of the State Association might well also make a similar annual study and report. At any rate, let us strive for more light and let us have nothing of prejudice.

3. The third matter I wish to call to your attention is the State Public Health Organization of North Dakota. We are not in the "Registration Area" of the Census Bureau. Our death-rate, based upon incomplete reports, is high compared with those of other states and other cities, in spite of a superior medical profession and of climatic conditions that should be favorable. In the same way we report our communicable diseases badly, and at the same time have too great a morbidity. We do practically nothing in the way of sanitation. We have legislation providing for a system of medical school inspection or of county and city school nursing, which has possibilities for much good, as was said in a preceding paragraph, but which, lacking proper supervision, and largely in the hands of untrained enthusiasts, is in danger of falling down.

A few years ago, by good authority,[9] we were rated thirty-third among the states in public health organization and in the efficiency of our efforts; we were scored 139 points out of a possible 1,000. It should be added that of the 139 points, we received 68 of them, or almost exactly one-half, for the amount and character of the work done in the Public Health Laboratory. The possible score for the laboratory was 80. Had the laboratory not been in existence, or had it scored in proportion to the other activities, our total score would have been somewhere between 71 and 85, and our rating with the other states would have been somewhere between forty-third and forty-eighth. Today, North Dakota has the distinction of having by far the lowest budget for public health work of any state in the Union.

North Dakota needs a State Board of Health differently constituted from the present Board. The Attorney-General and the Superintendent of Public Instruction should be ex-officio members. There should be three appointive members with terms of six years each, being appointed at the first time for periods of two, four, and six years.

There should be a full-time State Health Officer selected by this Board, not from its own numbers, but who when he has been chosen will be an ex-officio member of the Board. In 33 states the Health Officer is chosen by the Board; in 18, his term of office is during good behavior; in 30, he is an ex-officio member of the Board.[10] This is, no doubt, the best plan.

Under the State Board of Health and full-time health officer, there should be bureaus about as follows:

1. *Preventable Diseases*, with the laboratory work provided for as at present by the Public Health Laboratories.
2. *Vital Statistics.* — At least two efficient clerks are needed for this work alone.
3. *Sanitation and Inspection.* — There should be a competent sanitary engineer connected with the department. We have constant calls for assistance in such questions as water and milk supplies, and the disposal of sewage, garbage, and creamery wastes. With this bureau might well be lodged the inspection of slaughter-houses, hotels, restaurants, barber shops, and the like. Inspections are now provided for otherwise, or not provided for at all. Again, the necessary laboratory work could well be handled by the Public Health Laboratories.
4. *Public Health Nursing and Child Welfare.* —This Bureau would supervise and direct the work of public health nurses in the state and have immediate charge of the work made possible by the Sheppard-Towner act.

There should be a budget comparable, at least, with the budgets of the Dairy Commissioner, the Live Stock Sanitary Board and the Department of Oil Inspection. If the budget, aside from the support of the Public Health Laboratory, were only $20,000 a year, it would be between five and six times as great as it is at present, and still one of the very smallest state budgets for public health work.

I am urging no elaborate or idealistic scheme for the state. Personally, I should be glad to see the State Board of Health undertake no line of work that the State Medical Association, through its proper committees, would not positively advise and recommend. I can assure you also that I have no personal ambition in the matter. I am quite sure, however, that there is no other enterprise costing so little as a reasonably equipped health department that would mean so much for the people of the state.

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PUTTING NORTH DAKOTA ON THE PUBLIC HEALTH MAP

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GRAND FORKS, NORTH DAKOTA

From the title of this article it may be inferred that North Dakota is not on the public health map at the present time. Such an inference is entirely correct. Compared with the efforts of other states in preventing unnecessary sickness and premature death North Dakota lags perceptibly. It is the purpose of the present discussion to point out the obvious defects in the existing procedure and suggest a means whereby the state may be able to take its rightful place in the steadily widening field of preventive medicine.

When Chapin, of Providence, made his study several years ago of the relative efficiency of state health departments, he accorded North Dakota a rating of 130 points out of a possible 1,000. This placed the state thirty-third on the list, a showing that would have been creditable had not one-half of the points resulted from the excellent showing of the laboratories. As a matter of fact the state would have ranked among the lowest in the United States had the rating been based solely on the organization of the State Board of Health.

The backwardness of the state in public health administration has been recognized for a number of years, and some desultory efforts have been made to bring about an improvement. Past secretaries of the State Board of Health have decried the conditions, county health officers have repeatedly urged corrective measures, even the Federal Government has taken cognizance of the situation. In 1915 Dr. Carroll Fox, of the United States Public Health Service, made a careful survey and comprehensive report on public health efforts in North Dakota. While the recommendations made by Dr. Fox were conservative, their application would have given the state an excellent public health organization; however, indifference militated against their adoption, and preventive medicine continues to occupy a position far below its merits.

In order better to appreciate the inadequacy of existing public health work something must be understood of the public health laws, organization of the State Board of Health, and the annual appropriations available for preventive work. Even the most casual survey will disclose a grave discrepancy between the laws and the means provided for their enforcement. The model vital statistics law, for instance, has been adopted, but no provisions have been made for the manifestly important work of collecting and compiling the available information. There are evidences, too, that many laws and regulations have been hastily written, clarity being sacrificed. Certainly a complete revision of the health code, in keeping with modern advances in the field of preventive medicine, is clearly indicated.

At present the State Board of Health consists of three members, who are appointed by the Governor. The Attorney-General is ex-officio chairman of the Board, while the secretary serves as part-time executive officer. Obviously, it is possible for the personnel to change at least once, and possibly oftener, in two years. With a board of frequently changing personnel and a part-time secretary it is clearly impossible to perform effective public health work.

An even greater handicap than the faulty organization of the Board is the dearth of funds with which to carry on the simplest functions of public health administration. For instance, during the biennium ending June 30, 1923, the annual appropriation to the State Board of Health will be $3,450. With this meager allowance it is barely possible to pay the salary of one clerk, make an effort at compiling the defective vital statistics, print a quarterly bulletin, and meet the numerous incidental expenses. That little can be accomplished with this inadequate appropriation is self-evident.

It must not be inferred, however, that all public health effort in North Dakota is lacking. Such, of course, is not in accordance with the facts. Some excellent work is being performed, but it is through the medium of various uncorrelated state and private agencies. Moreover, the headquarters of these agencies are located in different cities, thereby rendering effective administration more difficult. In order that there may be a better understanding of the appropriations, affiliations, and locations of the various uncorrelated health organizations the following table has been prepared:

THE ORGANIZATIONS ENGAGED IN PUBLIC HEALTH WORK IN NORTH DAKOTA, WITH LOCATIONS OF HEADQUARTERS AND AFFILIATIONS

Organizations	Supervision	Headquarters	Appropriations
State Board of Health	State	Grand Forks	$3,450.00
Public health laboratories	University	Grand Forks	15,000.00
Bureau of venereal diseases	Special state officer	Bismarck	6,274.24
Anti-tuberculosis Association	Voluntary organization	Bismarck	5,000.00
Hotel inspection	College of Agriculture	Fargo	3,000.00
Public health nursing	Red Cross	Bismarck	....

Thus it will be seen that the sum of $29,274.24 is being spent by organizations either nominally or not at all associated with the State Board of Health. From this amount may be deducted the sum of $3,000, which is collected in fees from hotels inspected, but is, nevertheless, an expenditure chargeable to public health work.

It is a matter of interest and value to compare the expenditures for health purposes with those for the entire state. The present annual appropriations for the conduct of the executive, legislative, and judicial departments of the state government is $4,156,528.04. Authorities estimate that at least 2 per cent of the total state funds may legitimately be devoted to public health purposes. Computed on this basis there would become available for health work the sum of $83,130. However, approximately one-half of this amount would suffice to put North Dakota on the public health map.

It may be argued by some that the state is already appropriating an amount far in excess of the suggested 2 per cent allotment for health work. Appropriations for tuberculosis sanatoria, trachoma hospitals, asylums, and even eleemosynary institutions are frequently regarded as expenditures for health purposes. In answer to this contention it is only necessary to point out that these necessary institutions care for the victims of disease, while a public health organization devotes its energies to preventing conditions which require hospital or institutional care.

At the present time the only full-time worker directly connected with the State Board of Health is the clerk. Other full-time public health workers in the state are the laboratory employees, hotel inspector, county public health nurses, and the nurses associated with the North Dakota Anti-Tuberculosis Association. It becomes apparent, therefore, that the State Board of Health is without personnel.

If any argument were needed for the establishment of a state department of health it would readily be supplied by those requiring its services at the present time. Requests for assistance in suppressing outbreaks of disease, improving local public health organizations, protecting water supplies, and disposing of waste have, of necessity, been denied because there have been no persons available for the work. Health education has been largely neglected because there has been no one to direct its preparation and application. Even more serious has been the manifest deficiency in the registration of births and deaths. It is frequently intimated that North Dakota has a high birth-rate and low death-rate, the statements being based upon available figures, estimates, and guesses. However, comparison with the records of states in which reliable returns are secured clearly indicates that North Dakota's vital statistics are notably deficient. North Dakota is not in the registration areas for births and deaths, and will not be so included until a decided improvement is brought about through the combined efforts of an organized health department and the citizens of the state.

What, then, is the remedy for North Dakota's public health ills? In brief, it may be stated that reorganization of the State Board of Health, adequate funds, full-time personnel, and centralization of health activities will fill the immediate needs. After the state department has demonstrated its capabilities its influence may gradually be extended.

To indicate an ideal state health department for North Dakota would be interesting, but impracticable. What is needed now is a basic organization comprising the activities most applicable to the specific requirements of the state. Fortunately, such an organization can be obtained at an annual expenditure of approximately $43,500, which is 1.04 per cent of the entire appropriation of the state and only $13,776 more than is now being spent for various uncorrelated health activities. The per capita cost at this rate would be $.067, truly an insignificant outlay for the service rendered.

The reorganization of the State Board of Health to include seven, instead of three, appointive members is a prime need. The appointment of these members by the governor for varying periods of service would tend to remove the governing body from political domination. At least two members of the Board should be women. The Board should have the power to appoint a trained, full-time state health officer, whose term of office would be determined by efficiency and good behavior.

In addition to these essential changes there should be four working divisions in the department, each with a trained, full-time director. In addition adequate clerical assistance would be required. These divisions, in order of relative importance, may be designated as follows:

1. Division of vital statistics.
2. Division of preventable diseases.
3. Division of child hygiene and public health nursing.
4. Division of sanitary engineering.

The state department of health should be suitably housed in the capitol in Bismarck or in suitable quarters in that city. An exception would, of course, be made in the instances of the laboratories, which should remain where they are, thereby continuing the services which have been so acceptably rendered to their respective communities in the past.

Admittedly there are numerous desirable features that have not been incorporated in the plan presented. These have not been omitted through lack of appreciation of their value, but because they should come as a more gradual development. There is, for example, the most desirable provision for district health officers, a valuable adjunct to any state health department. Considering, however, that the fundamentals are now lacking it is more important that a beginning be made, instead of attempting immediately to create an organization complete in all particulars.

Inasmuch as North Dakota is one of the few states without an adequate state health department the time has certainly arrived for attempting to acquire one. In achieving this result the people, and especially the legislators, will look to the medical profession for guidance and approval. The profession, already noted for its altruism, will acquire additional fame by exerting its individual and collective efforts in the interest of a movement that has for its purpose the prevention of unnecessary sickness and premature death.

Whether the next legislature will create the organization that will place North Dakota on the public health map it is now too soon to forecast. However, if the North Dakota State Medical Association, the component District Societies, and the individual physicians will concertedly advocate such a measure there is ample reason for anticipating a most favorable attitude on the part of the legislature towards the proposed plan of safeguarding our most precious asset, health.

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"POTTERISM" IN MEDICINE

Two years ago Rose Macaulay wrote a book called "Potterism," which was the story of an English family. Mr. Potter was the proprietor and owner of a chain of popular newspapers; and, like most of the papers that appeal to the curiosity of the news-devouring public, they appealed to the people from a sensational point of view, because they reflected in their editorials and in their news items the ideas of the people who read the papers. The wife of Mr. Potter wrote a number of books, probably the kind of books that appealed to the sentimental and goody-goody classes, although she felt she was an inspiration to them. To the real book-lover they seemed like many of our books, more or less unsubstantial and more or less trashy. But Potter knew his business. He kept on the side of the people and appealed to them because they thought he expressed their views. Two members of his family, however, twins, after going through Oxford came out with the usual young, advanced ideas, and they, with a few other kindred souls, decided that the time had come when a reformation was necessary; that the people must have the facts without sentimentality and without partisan views, but must be left to judge for themselves as to what was right and what was needless. Consequently, they formed a little organization and called themselves "Anti-Potterites," and the clan, headed by a talented Russian Jew of English birth, started a weekly paper called *The Fact*. Doubtless they enjoyed a great deal of self-aggrandizement from the publication of a weekly paper because it brought forth what some of us would call a more or less radical opinion. They believed, as the author expresses it, that "Potterism" has, for one of its surest bases, fear. The other bases are ignorance, vulgarity, mental laziness, sentimentality, and greed, —the ignorance which does not know facts; the vulgarity which cannot appreciate values; the laziness which will not try to learn either of these things; the sentimentality which, knowing neither, is stirred by the valueless and the untrue: and the greed which grabs and exploits. But fear is the worst; the fear of public opinion, the fear of scandal, the fear of independent thought, of loss of position, of discomfort, of consequences, of truth. That was the real creed of Potterism. One of their own sect, one of the "Anti-Potterites," evidently had a very good insight into things, and, although she says that she is even less interested in the twins than in the rest of the family, who are the usual British mixture of humbug, sentimentality, commercialism, and genuine feeling, she believes they represent Potterism.

The question comes up, now, as to whether this same Potterism cannot be applied to medicine, to medical men and all that pertains to medicine; that is, the average man (or a certain class) in medicine who suffers from these various traits might safely be called a Potterite because he permits himself to indulge in all of the Potteristic methods to gain his end. This may, perhaps, be rather a broad, generalized statement, but are there many of us who can get out of the rut and not be Potterites? Then, too, this classification takes in all of the by-paths, the by-products, and the cults; they are the real Potterites. The men or the class who form the Anti-Potterites are the aggressors, the radicals, the one-idea men, who think they can force their opinions and views upon the public in general. And they work and strive and in every way attempt to put themselves in the limelight without realizing that after a hard fight and a brief, or prolonged, vigorous struggle, the light goes out, and they inevitably drift back to Potterism, although they may have left behind them a few impressive ideas which are gathered up by the masses (and when we say masses we mean the masses in medicine) who absorb from them an old idea in new clothing; they take it as their own, they exploit it as something original, and it disappears in the medical mind as an established fact. Some of the research men, men who follow one system in medicine, men who are absorbed with only one of the many branches over which medical men tread, are fundamentally Anti-Potterites. But the Anti-Potterite, if he did but know it, is, or will be, inevitably swamped by the Potteristic mind. This proved to be true in the experiment in Anti-Potterism. The opposition were unable to sway the minds of the thinking classes except in a very small degree. A few, of course, were for a time attracted to the new thought, but they inevitably dropped it for something else. And, although they were not conscious of it, they went back, as most of us do unless we are broad enough and big enough to see things without the aid of a microscope.

There is, fortunately, a happy medium between Potterites and Anti-Potterites. That is to say, we must as a class adopt everything that is good, that is sound and logical, and that has some value. But it is a long, narrow path, and the majority of us like to ride on the highways where there are very few obstacles, where the road is reasonably clear, and where we can get along with as little thinking as possible.

THE TENTH DISTRICT HOSPITAL

When the Government rented Asbury Hospital, in Minneapolis, and a large apartment house, in St. Paul, for hospital purposes, it did the best it could in an emergency. But now that the American Legion is looking after the welfare of the sick soldiers, there has arisen a very acrimonious controversy between Col. A. A. Sprague, chairman of the American Legion's National Rehabilitation Committee, and Brigadier-General Charles D. Sawyer, President Harding's physician, who has the deciding answer to all hospitalization questions; and the interviews between these two men have been more or less interesting.

Dr. Sawyer makes the assertion that there are ninety Government hospitals with a total capacity of 28,412 beds, 10,191 of which are occupied. Col. Sprague replies to this, and criticises the position of the Government in regard to the care of the wounded soldiers, that there are 8,611 patients in contract hospitals, 4,517 of whom are mental and nervous cases, and 2,774 of whom are tuberculous. These figures Col. Sprague claims Dr. Sawyer has omitted from his statement to Congress. He further criticises Dr. Sawyer in that most of these so-called Government hospitals are only emergency buildings, leased from year to year. It is not on statistics that the Legion's plea for proper hospitalization is based, but on constant daily observations of the conditions and personal contact with the situation in every one of the fourteen districts. Col. Sprague cites an instance where three men were hospitalized in one room, one of them a mental patient, another a general surgical patient, and the third a tuberculous patient. The mental patient escaped one night and was recaptured. He was put back in his room, and the next night he killed the tuberculous patient with a chair, while the surgical patient looked on helplessly. And Col. Sprague suggests that a physicians' committee be selected from the Executive Committee of the American Medical Association, men who have no connection with Govermental service, to look into this affair in controversy and report to the President. How true this criticism is no one knows definitely. If General Sawyer is right, that there are 18,000 beds unoccupied, that is a point in his favor. If he has left out the 8,000 patients in contract hospitals, that is a point against him. At all events, it is a pretty big issue to be handled in any way but the most generous manner.

We all appreciate the fact that the Government was wholly and totally unprepared for the emergencies, and apparently it has been almost wholly and totally unprepared ever since. At all events, the amount of work the Government has done has been comparatively little, considering the material that demands attention. In order to bring the matter in Minnesota to a focus, in the Tenth District particularly, there were nearly one hundred offers made to the Government from the Tenth District for a site for a Government hospital. Most of them, of course, could not be considered, but two outstanding offers were made and considered,—the offer of 325 acres of land at Robbinsdale, six miles from the center of Minneapolis, and the other offer of some 500 acres of land near St. Cloud. Apparently through the indifference, and, again, because of the complacency of Minneapolis the offer at Robbinsdale was not in good enough order to satisfy Col. Forbes or President Harding. The result is that the St. Cloud site has been selected, and apparently the matter is settled. In the report handed in by the investigator, St. Cloud was selected because it was in such close proximity to St. Paul and Minneapolis, where experts could be had on short notice, being seventy-five miles away from the Twin Cities. This, of course, was ludicrous. It was probably settled by the Congressman from the St. Cloud district, consequently more or less politics was involved in the final selection of a hospital site for the Tenth District. However, Minneapolis need not feel uneasy about this, because a hospital of this kind, located in any city, is not especially gainful. It may be to a few, from the point of experience, but to the community at large it is not satisfactory. This has been illustrated time and again by the location of State institutions. They have been a positive menace to the town in which located, although the town feels that the employees spend a lot of money in the town; but, as a matter of fact, most of the money goes to outside centers.

Not expressing any special reason why one or the other of these mentioned sites, Robbinsdale and St. Cloud, should be selected, the fact seems very clearly known to a few that the Government had practically decided that, as it owned 2,000 acres of land at Fort Snelling, the Government hospital should be erected on that site, provided there was no objection on the part of St. Paul and Minneapolis. It seems, however, there was objection, and it was reported that the mayors of both cities and the commercial clubs of both cities, as well as one or two military men, opposed this site, for what reason or reasons we do not know. The town which donates the site buys it, pays for it, and turns it over to the Government; and yet the Government has land of its own, plenty of it, wonderfully situated and near enough to the Twin Cities and the Medical School to have made it worth while. It shows, again, that these two towns, Minneapolis and St. Paul, have settled back in their easy-chairs, complacently viewing events as they went by. If what has been stated is true, that there was objection and opposition on the part of the public men and commercial clubs, it is disgraceful. It is about time someone waked up and tried to do the right thing and eliminated personal preferences and prejudices.

PUBLIC HEALTH EXHIBITS AT THE MINNESOTA STATE FAIR

Seventeen public health agencies of the Twin Cities and the Northwest are planning unique exhibits and educative entertainment features for the public health building at the Minnesota State Fair, September 2-9.

Many of the items have to do with the education of parents and children in child hygiene, the early forming of the right health habits. A $500 children's prize contest for clean mouths and good teeth, entertainments by a "Toothbrush Man" to inculcate lessons in mouth hygiene, a storekeeper who exercises his discretion in the kinds of foods he will sell to children, an exhibit by the Hennepin County rural public health nurses illustrating the value of physical inspections of rural school children, a series of child health plays, and a 12-panel exhibit of the Minneapolis Infant Welfare Society on child feeding and training, are outstanding features advertised for the building.

Putting into layman's language the facts he should know about preventable diseases, sanitation with reference to milk, water and sewage disposal, venereal diseases, vital statistics, and child hygiene with particular reference to Minnesota's participation in the provisions of the Sheppard-Towner bill will be the purpose of a four-booth exhibit by the Minnesota State Board of Health. The State League of Nursing Education will emphasize in their exhibit the need of legislation for higher standards of nursing education.

Other organizations, not named above, participating in the exhibits and entertainment features are the Northwest Pediatric Society, the American Red Cross, the Minnesota Public Health Association, the Minnesota State Sanatorium Advisory Commission, the Minnesota State Dental Association, the Twin City Industrial Nurses' Organization, the Minneapolis Health Department, the Hennepin County Public Health Association, the Hennepin County Tuberculosis Association, the Minneapolis Visiting Nurse Association, the St. Paul Baby Welfare Society, the Wilder Charity Nurses of St. Paul, and the Ramsey County (Minnesota) Public Health Association.

TRANSACTIONS OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

We wish we could induce every reader of The Journal-Lancet to read carefully the report of the work done at the annual meeting of our sister state's medical association, together with the address of the president of such association and the able paper by Dr. Robert Olsen, of the U. S. Public Health Service, who has been loaned by the national Government to North Dakota in a real emergency.

The problems which the medical men of North Dakota are trying to solve are the same problems that confront the medical men of Minnesota, South Dakota, Montana, and other of the new states of the Northwest; and some of these problems cannot be dealt with unless the men of one state know of the efforts, successes, and failures of the men of other states.

Then, too, many of these problems are the concern of the whole profession, and must be dealt with in the light of the experience of medical men everywhere.

Let us all become informed along these lines, and not complain of the activity of the cults while we remain inert.

BOOK NOTICES

1920 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 1392 pages, 446 illustrations. Philadelphia and London: W. B. Saunders Company. Cloth, $12.00 net.

Among the interesting articles in this book a few only can be mentioned. An exhaustive study of the alimentary canal is given, both medical and surgical. There are new methods of applying radium in cases of esophageal cancer and a simple surgical treatment for calloused ulcer of the posterior wall of the stomach, using the cautery, finishing with the posterior gastroenterostomy. Emphasis upon the possibility of a chronic ulcer becoming carcinomatous; excise or resect the ulcer and submit the specimen to a well-trained surgical cytopathologist.

Every gastric ulcer in which the initial symptoms appear during or after the fourth decade of life must be looked on as potentially malignant, and medical treatment should be supplemented by constant clinical supervision. Surgical treatment of ulcer is the best recognition of the value of medical treatment in permanently overcoming delay or obstruction and lowering the acidity with the patient's own alkalis.

As regards gastrojejunal ulcers, careful operative technic combined with immediate and continued postoperative medical management should greatly reduce the incidence of the lesion. Medical participation under any circumstances in addition to the removal of foci of infection insures satisfactory surgical end-results.

In an experimental study as to the physiology of the liver it was found by experiment that an animal would live only from five to eleven hours after the removal of the liver.

Mayo statistics corroborate the fact that cholecystitis is frequently, if not always, associated with hepatitis. In an experimental study it was shown that by chemical means a specific cholecystitis could be produced. Two hours after an injection of chlorinated soda solution the gall-bladder showed a very acute inflammatory reaction.

Diseased gall-bladders should be treated by cholecystectomy, their drainage being required under special conditions. Abdominal biliary drainage is not indicated except in complications; and that abdominal drainage is indicated only in conditions in which it would be used in the surgical treatment of other abdominal disease in which infection is present or has been present. An article on the technic of hepatoduodenostomy with some notes on reconstructive surgery of the biliary ducts is given in detail.

In surgical treatment of malignant tumors of the bladder one of the arguments against the use of radium or fulguration is that both may be used when a radical operation should be performed.

Drainage of the bladder preliminary to prostatectomy by urethral catheter or suprapubic drainage is the keynote to successful management in cases of prostatic hypertrophy.

Radium treatment in 600 cases of menorrhagia and treatment of uterine tumors is given.

Under the subject of ductless glands is discussed thyrotoxic adenoma. Goiters are divided into three classes: colloid, adenomatous, exophthalmic; and their indications for surgical treatment are given. There is a good treatment for substernal and intrathoracic goiters. The relation of hyperthyroidism to diabetes mellitus is explained fully. Cysts of the pancreas should always be removed when possible.

Rubber tubing should be treated with normal sodium hydroxid solution before using for blood transfusion..

A provocative procedure in the diagnosis of syphilis is described. Interesting studies in influenza and pneumonia, such as its bacteriology, leukocytic injection of bacteria, and experiments in gastro-intestinal pneumonia.

Abscess of the lung, especially the chronic abscess, is due to tuberculosis.

Use of beef-bone screws in fracture and bone transplantation is advised.

Some very interesting observations on an inspection tour of South America are inserted.

Clyde A. Undine, M.D.

Neoplastic Diseases. A treatise on Tumors. By James Ewing, M.D., Sc.D., Professor of Pathology at Cornell University Medical College, New York City, Second Edition, Revised and Enlarged. Octavo of 1054 pages with 514 illustrations. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $12.00 net.

Soon after the publication of its first edition, Ewing's "Neoplastic Diseases" was recognized by pathologists as a classical work which would remain for years to come as a prime authority on the subject of tumor growths. The treatise has had a steadily growing popularity with clinical workers because of its clear, comprehensive text and extraordinary photographic illustrations.

Ewing has analyzed the etiological factors, described the clinical behavior, and the gross and microscopic structure, and traced the histogenesis of the various neoplasms to the last degree.

The various tumors are thoroughly classified and taken up as separate specific diseases. Such a conception should be of great practical value to both the clinician and the pathologist.

The new second edition shows minor additions and revisions in almost every chapter; and the chapters on tumors of the bone and on neurofibromatosis have been largely rewritten. Thirty-three new illustrations have been added. The bibliography is very comprehensive and conveniently arranged. The index is all that could be desired.

Theodore H. Sweetser, M.D.

NEWS ITEMS

Dr. A. J. Button, of Hackensack, has opened his new hospital.

Dr. Roger H. Mattson, of Minneapolis, has moved to Stephen.

Dr. F. H. Magney, of Duluth, is to be married to-day to Miss Ruth Taylor, of the same city.

Dr. H. M. Knudtson, of Pipestone, has resumed practice after several months' severe illness.

To

Dr. J. T. Asbury, of Rochester, who formerly practiced at Chatfield, has located at Stewartville.

add

Dr. Stanley R. Maxeiner, of Minneapolis, was married last month to Mrs. Madeline Ward, of St. Paul.

The Hennepin County Tuberculosis Association has started a campaign for more open-air schools in Minneapolis.

Dr. O. W. Scholpp, of Hutchinson, has returned from Europe. He spent three months in the clinics of Vienna.

Dr. Norton T. Johnson, of Minneapolis, has gone to Europe for a year's special study. He will spend nine months in Vienna.

Dr. E. T. Sanderson, of Minneota, was appointed a member of the Minnesota State Board of Medical Examiners last month.

Dr. Frederick Eberson, of New York, is temporarily associated with the staff of the Section of Dermatology at the Mayo Clinic.

Dr. J. B. Stevens, of Luverne, has become a member of the staff of the Mayo Clinic, Rochester, in the eye, ear, nose, and throat department.

Dr. J. A. Crouch, of Belle Fourche, S. D., has returned from Johns Hopkins, where he took a special course in a limited class of thirty physicians.

The contract has been let for an addition to St. Joseph's Hospital of Brainerd. The extension will give the hospital thirty or more additional beds.

The American Academy of Ophthalmology and Oto-Laryngology will meet in Minneapolis and St. Paul next month from the 19th to the 23d, inclusive.

The Minnesota State Board of Health will ask the next legislature for funds to keep the tourists' camps in the state in a sanitary and attractive condition.

Dr. M. J. Fardy, who has completed a three years' fellowship in surgery in the Mayo Foundation will be associated in practice with Dr. J. L. Devine of Minot, N. D.

The Department of Health of Duluth is making an effort to prevent goiter, and will be assisted in the work by the Department of Pharmacology of the State University Medical School.

Dr. C. E. Downes, in charge of the U. S. Trachoma Hospital at La Moure, N. D., has recommended that the hospital be moved to Bismarck as a more convenient location for its patrons.

Since Dr. E. K. Pfaff, of Minneapolis, located in Richmond, in December, and took over the management of the Community Hospital, the hospital has been full of patients and may be enlarged this fall.

Dr. C. A. Durkee, of Abercrombie, N. D., has decided to move to Fairmount, N. D., and has purchased a residence in the latter place. He will do postgraduate work before beginning practice in Fairmount.

The Board of Welfare of Minneapolis wants a hospital for incurables, of whom there are over four hundred in the city. A committee of three physicians on this Board was appointed to take the necessary steps to obtain the hospital.

Dr. E. P. Cathcart has completed a one year's Special Fellowship in Dermatology and Syphilology in the Mayo Foundation and has gone to

St. Francis Hospital, Pittsburgh, for one year. He expects to return to the Clinic July 1, 1923.

Dr. E. M. Stansbury, of Vermilion, S. D., is building a hospital with a maximum capacity of thirty beds. It will be modern in all respects, and will be completed by the middle of September. It will be open to members of the profession.

At a nose and throat clinic given at Mott, N. D., last month, 52 children were operated on for the removal of tonsils and adenoids. The clinic was under the supervision of the public health nurse. A charge of $10.00 was made for each operation.

Dr. John W. Ellis, of Elk Point, S. D., died last month at the age of 70. Dr. Ellis located in Elk Point in 1875, and soon became prominent in public affairs, holding a number of public offices, among them the presidency of the State Board of Health.

Dr. D. Parham, who has completed a three years' fellowship in surgery in the Mayo Foundation and received the Degree of Master of Science in Surgery, June 14, 1922, has left the Clinic, and has gone to the Woman's Hospital, New York City, New York.

Dr. R. Fitz, who has been Professor of Medicine in the Mayo Foundation and chief of a medical section since August 15, 1920, has left the clinic to become Associate Professor of Medicine at Harvard University and Visiting Physician at Peter Brent Brigham Hospital, Boston.

The Division of Venereal Diseases of the Minnesota State Board of Health asked 144 Minnesota physicians their opinions as to whether street carnivals are responsible for the spread of venereal disease. All but 18 answered "yes," and all but 8 out of 137 favored the prohibition of such carnivals.

Dr. C. Corbin Yancey, formerly of Chicago, succeeds Dr. John W. Shuman, Sioux City, Iowa, in the practice of internal medicine and consultation. Dr. Shuman sails on September 13 for Beirut, Syria, where he will take the Chair of Internal Medicine at the American Medical College of Near East Commission.

The secretary of the Southern Minnesota Medical Association announces that its midwinter meeting will be held at Mankato on December 4 and 5. The announcement contains the *remarkable* statement that there will be "no discussions, but more papers." The editor will remark upon this statement at a future time.

Dr. Oscar Blosomo, a recent graduate of the Medical School of the University of Minnesota, has become associated with Dr. J. C. Jensen, of Hendricks. Dr. Blosomo served his interneship in the General Hospital of Minneapolis and the City and County Hospital of Los Angeles, Calif. Dr. Jensen is also a Minnesota University graduate, class of '04.

Licenses to practice medicine in North Dakota were issued last month by the State Board of Medical Examiners to the following: Dr. George Smith, Park River; Dr. F. V. Vinnegut, Neche; Dr. E. J. Larsen, Bismarck; Dr. H. E. Landes, Kenmare; Dr. Henry Tackacs, Hitterdal, Minn.; Dr. M. J. Fardy, Minot; and Dr. R. J. Critchfield, Maddock.

Dr. Paul F. Brown, of Minneapolis, who has been associated with Dr. J. H. Rishmiller for the past three years, is going to Maywood, Ill., as chief of the Surgical Service of the Speedway Hospital in the U. S. Public Health Service. His position gives him the rank of surgeon in the Service. Dr. Brown is a graduate of the Medical School of the University of Minnesota, class of '05.

A cordial invitation is extended to every member of the State Medical Association and to every clinic and hospital in Minnesota to participate in the exhibition of *x*-ray films during the coming meeting of the State Association in Minneapolis, October 12-15. A single film of interest is equally as welcome as several or many. The films can be mailed or expressed to the *X*-Ray Committee, in care of Dr. E. T. Bell, Anatomy Building, University of Minnesota. The return of the films in good condition is guaranteed.

Arrangements are being perfected whereby Prof. Robert Barany, formerly of Vienna and now of the University of Upsala, Sweden, will be the guest of honor at the annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, which will be held in the Twin Cities September 19 to 23. He comes especially to read a paper presenting his new method of radical operation for chronic ear suppuration. During the two weeks immediately following the meeting of the Academy he will conduct, under the auspices of the Minnesota Academy of Ophthalmology and Oto-Laryngology a special postgraduate course in otology.

PROGRAM OF THE CONSULTING STAFF OF THE LYMANHURST OPEN AIR SCHOOL FOR SEPTEMBER-DECEMBER

As the Consulting Staff of the Lymanhurst Open Air School for Tuberculous Children in Minneapolis extends a general invitation to physicians to attend its meetings and take part in the discussions, we give the program for the remainder of the year, which as as follows:

September 12: The Handling of Heart Disease in Children. Dr. Max Seham, Assistant Professor of Pediatrics, University of Minnesota.

September 26: The Agglutination Test in the Diagnosis of Tuberculosis. Dr. W. P. Larson, Consulting Bacteriologist, Lymanhurst School for Tuberculous Children. Professor of Bacteriology, University of Minnesota.

October 10: *X*-Ray of Chest Conditions in Children. Dr. F. C. Rodda, Associate Professor of Pediatrics, University of Minnesota.

October 24: Further Studies in the Vital Capacity of the Lungs of Children. Dr. C. A. Stewart. Consulting Pediatrician, Lymanhurst School for Tuberculous Children. Assistant Professor of Pediatrics, University of Minnesota.

November 14: The Control of Tuberculosis. Dr. Robinson Bosworth, Secretary of the State Advisory Commission, St. Paul, President of Mississippi Valley Conference on Tuberculosis.

November 28: Tuberculosis in Children—An Historic Review of the Work in Minneapolis. Dr. W. J. Marcley, Chief of the Tuberculosis Service, United States Veterans Bureau, Minneapolis. Chief of the Tuberculosis Service, Minneapolis General Hospital.

December 12: The Comparison of Organ Weights in Tuberculosis with those in Other Conditions Producing Emaciation. Dr. C. M. Jackson, Chief of the Department of Anatomy, University of Minnesota, and President of the American Association of Anatomists.

SUBSTITUTE PHYSICIAN WANTED

I desire a young, up-to-date man to take charge of my practice in a North Dakota town during the month of September. Address 267, care of this office.

LOCUM TENENCY WANTED

A senior student of the University of Minnesota Medical School with some medical experience desires some substitute work. Best of references. Address 268, care of this office.

LOCATION FOR EYE, EAR, NOSE AND THROAT SPECIALIST

To a specialist in the above line, an excellent location is offered in a Northwestern city of over 30,000 population. Office with a physician and surgeon and dentist. Rent reasonable. Address 269, care of this office.

SUBSTITUTE WORK WANTED

By a physician who has had ten years' experience in general practice. Available at once. Address 265, care of this office.

PHYSICIAN WANTED

In a Northwestern Iowa town of 600, a well-qualified physician is wanted to take over a practice of $3,000 to $4,000. Nothing to buy. Office rents for $12 a month, and a good man can step in and go to work. Address 266, care of this office.

PRACTICE FOR SALE

A $5,000 practice in a Southern Minnesota town of 2,000 population is offered for sale at price of equipment. Best farming section in state. No hospital. Competition not strong. Am going to specialize after fifteen years' general practice at present location. Address 264, care of this office.

POSITION WANTED BY TECHNICIAN

A recent graduate from the Laboratory of the Minneapolis General (City) Hospital desires a position. Can do all routine laboratory work and general clerical work. Will go outside of the city to accept work, and will do so at a moderate salary. Best of references. Address 270, care of this office.

PHYSICIAN WANTS LOCATION

A general practitioner desires to locate in a town of from 500 to 1,500 population, preferably in Southern Minnesota. Address 363, care of this office.

FINE OPENING IN MINNEAPOLIS FOR AN EYE, EAR, NOSE AND THROAT SPECIALIST

A splendid opportunity is offered a good, ethical specialist in the above line who desires to locate in Minneapolis. The office is with a general practitioner and a dentist in an unexcelled location. The field is a large and desirable one. The best of references will be given and are desired from the applicant. Address 261, care of this office.

POSITION IN PHYSICIAN'S OFFICE AS NURSE AND SECRETARY WANTED

Applicant is a graduate of a Philadelphia hospital training-school, and has had two years' experience as an industrial nurse with a Minneapolis physician, doing all the office *x*-ray work. Will go out of the city. Best of references. Address 262, care of this office.

PRACTICE FOR SALE IN MINNESOTA

A practically unapproved practice in Minnesota is offered for sale at the price of office and residence. Practice well established; thirty-five miles from the Twin Cities; population, 1,200; good roads; good collections; people mostly of German descent. Address 260, care of this office.

$10,000 GENERAL PRACTICE FOR SALE IN IOWA

Established 12 years; good fees, collections 100 per cent; population 2,300; thickly settled surrounding rural community; good schools, fine churches; one of the most modern and best equipped 35-bed hospitals in Iowa. Practice can be easily increased to better than $15,000 by doing surgery or eye, ear, nose and throat; nothing to sell but office equipment, drugs and supplies. Address 258, care of this office.

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CEREBROSPINAL MENINGITIS*

By HOWARD L. SAYLOR, M.D.
HURON, SOUTH DAKOTA

In presenting this subject I desire to touch but lightly those phases of the mode of infection, detection of carriers, and the identification and types of meningococcus, as they have been emphasized in our literature already by Flexner, Amoss, Gates and others sufficiently to fix them in our minds for all practical purposes. I wish to lay more stress on the features which will bring to the general medical man a clearness and conciseness of method that is obtained for the greater part by experience.

There has been no refutation to date of the statement that the meningococcus enters and leaves the body by way of the nasopharyngeal membrane. It is not definitely known whether it enters the system through the lymphatic system along the olfactory nerves or indirectly by the blood stream, but probably by the former route. However, it is not infrequently found early in the general circulation, from which it may be implanted in the joints, the heart, the eye, etc.

Two classes of persons harbor the meningococcus in the pharynx,—actual cases of meningitis and carriers. Of these the carrier is the more dangerous, as he is not sick, and is up and about mingling with his fellows, therefore becoming a menace because of his freedom. He can spread infection from coughing into the surrounding air or by his hands from secretions deposited on handkerchiefs, etc. Hence crowding of men, as we had in the last war, was conducive to the epidemics that followed. In this connection the writer had considerable experience with Major Dunham, of New York City, with a power sprayer by which one thousand men could be sprayed in an hour, using a solution of dichloramin T, and it was our experience that most carriers could be easily and quickly cleared up, and, as no sporadic cases followed, our conclusions would seem to be fully justified.

In testing for carriers the use of the West tube or something similar is to be advised, as it eliminates contamination from mouth or throat. After swabbing both sides of the pharynx this tube is wiped across a culture plate containing serum constituents or equivalents, incubated at once at 37° C., and should not be allowed to get cold or delay incubation, as the meningococcus does not develop well in mediums and is distinguished by its opalescent color on nutrient agar, is gram negative, and agglutinates in dilutions of 1-200 or less with an active polyvalent serum.

Of the meningococcic types there are normal or regular, para and intermediate, and the English classification of types 1, 2, 3, 4 correspond to this, 1 being para, 2 normal and 3 and 4 intermediate, based on elective absorption of agglutinin, this classification excluding other organisms having the same cultural, microscopic, or staining properties.

There are numerous polyvalent serums on the market, the value of which depends on their agglutinating power. A test may disclose a vast difference, and, in order not to be fooled into thinking you are wisely treating such cases, it will be well to ascertain their titration and adaptability to the organism found in the individual case.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

Passing now to the diagnosis and symptomatology, I will make the assertion that a very early diagnosis is an accomplishment worthy of note in the physician and a priceless boon to the patient. In my contact with this disease in the army not one diagnosis was made in the regiments and but one made at the receiving station, all others being diagnosed in the wards in from ten to thirty-six hours after admission, and I want to add that not all the failures were due to mediocrity of the medical personnel, even though there was a slight epidemic at the time. I want to cite a case.

Mr. A. G., aged 24, at Barracks, Columbus, Ohio, began to feel ill with symptoms of acute coryza, general aching, and stiffness, nausea with later projectile vomiting, and a constantly increasing headache (these patients tell you it is the most piercing headache they have ever had). With most of these first stage symptoms this man was shipped out of Columbus sometime Saturday, and the last thing that he remembered was the mountains of northern Kentucky. He reached Camp McClellen, Ala., on Sunday midnight, was immediately sent to B. H., where the receiving officer, a captain, sent him to the heart ward to die, notwithstanding the fact that he was the only case there admitted that had a typical eruption and was totally unconscious. At 10 a. m. he was transferred to the meningitis ward, where rash, positive Kernig, some opisthotonos, and total unconsciousness were noted. His spinal fluid was cloudy. He received the usual treatment and got well.

Now, it does not seem to me that there should be so much difficulty in coming to a diagnosis. These patients are nearly all irritable, will often not answer your questions or will tell you that they want to be left alone, and gradually sink off into unconsciousness. A stiff neck with inability to depress the chin onto the sternum and a positive Kernig with all the other symptoms noted, calls for a spinal puncture, which should be done long before reaching the stage of unconsciousness. No harm can come from administering serum at this initial puncture, and it is imperative if the fluid is cloudy.

Laboratory aids enable one to cinch a positive diagnosis and should be resorted to from the beginning to the end of treatment. The number and variety of organisms found, the agglutinative power of the serum used over the organism found, and other characters of the fluid may thus be determined.

TREATMENT

If I am successful in making this part of my paper thoroughly clear to you I shall consider my efforts well spent, for I am going to advocate something different than you have probably been given before. Having had but one death I believe that I am justified in being assertive of my methods.

I want to bring home to you some of the things nearly always lightly touched upon because taken for granted by most writers, but which I consider important to those having had but little experience with this disease. I dismiss the intravenous injection of serum for this disease, as most cases you will see will have passed the stage when this treatment will render a cure, if at all, or even noticeably benefit. The patient, whether conscious or not, is prepared by placing on his side as near the edge of the bed as he can be placed, always trying to keep his back at a perfect right angle to the bed surface, the head of the bed being raised eight to twelve inches. A sheet or other suitable article is slipped under his knees and tied around the back of his neck tight enough to bring the knees nearly or quite against the chest. If the patient is unconscious it may take two or three assistants to hold him quiet enough to make a safe puncture. The skin is painted with tr. iodine covering from the 2d to the 5th lumbar space. Use a fair-sized needle, such as I show you for adults, smaller for children. Have it sharp with the obturator ground flat and smooth and completely filling the lumen of the needle. If desired a 1 or 2 per cent novocain or a sterile salt solution can be injected into the skin and deeper parts, but I have found it unnecessary and the benefits very doubtful. The serum used should be warmed to the temperature of the body and be given by gravity. It is almost needless to add that the articles used should be sterile. The operator should use rubber gloves for his own and the patient's protection.

Being now ready to make the puncture, the best space is on a direct line with the top of the hips, but the space above or below can be used. Feel with your finger and definitely make out this space on the skin between the vertebral spines and get into a position so that your eye is on a direct line toward the center of the spinal canal, your needle pointing straight in, and make your puncture through the skin and then stop and get located again. After you have made certain that your needle is in the median line, neither tilted up nor down nor to one side, push it slowly toward the center of the canal, and just before entering you will feel the peculiar cracking sensation when you go through the cartilage; and care should be taken not to allow the patient to roll around and break the needle while puncturing. Withdraw your obturator until the fluid drops rapidly, but never allow it to flow in a stream.

If it is cloudy you should *entirely drain* the canal and then introduce not less than 40 c.c. of serum, after which lower the head of the bed and raise the foot the same height as the head was raised; keep it this way for an hour or more, then put on a level. I have taken out as much as 85 c.c. fluid, took it *all* out in every case I treated; I was the first to advocate this method, and had one fatality and no complications of any sort.

If your patient is unconscious, the second dose should be given at the expiration of eight hours; and the third after eight to twelve hours after the second; and this dose or the next will likely bring consciousness, after which he should receive a daily dose until no more organisms are found in the fluid, then two or three more doses forty-eight hours apart. Forty c.c. is the best quantity to be given, as less than this amount of serum does not seem to have the desired effect. I occasionally resorted to aspirin or morphia, ⅛ gr., hypodermically, for restlessness and pain after puncture and never seemed to have to give much other treatment during convalescence, the serum entirely cleaning up these cases.

Patients should not be released from quarantine until three successive negative cultures at intervals of a few days are obtained. You will doubtless have a marked urticaria in treating these cases, but give the serum regardless, as I have previously stated. Should it become impossible to get the fluid out or the serum in, trephining has been resorted to, and the serum given into one of the ventricles with a 50 per cent mortality, with or without treatment. The case that I had that was fatal was this kind and the post-mortem disclosed the cause to be a thick deposit of fibrinous material around the cord at the foramen magnum completely shutting off a flow either way. Up and down the cord were deposits of fibrinous material.

The prognosis should be grave and guarded, though early and proper treatment will save from 75 to 85 per cent of these cases. The sequelæ that may follow are partial or total deafness; partial or total paralysis of certain muscles or groups of muscles, as the deltoid, pectorals, etc.; spastic paraplegia with exaggerated reflexes, knee jerk, ankle clonus, and double Babinski; and pericarditis.

IN CONCLUSION

Be suspicious of a case showing a gradually increasing headache with stiff neck and even a slight Kernig, and make a spinal puncture. Make a direct or straight in puncture, as it is easier to make, and the artists who advise you to make a side puncture have nothing on you, and it is 99 per cent harder to make. Keep up your treatment as directed until after your laboratory findings are negative. I have saved a few patients whose treatments had been stopped earlier by resuming injections and finding the fluid again, or still contaminated. Always use a very sharp needle, of good lumen and smooth point, and don't go into the canal further than necessary to get fluid. If the fluid does not flow readily, twist the needle one-fourth or one-half way around, or push it in a little or withdraw it slightly and replace the obturator. If the needle gets clogged with blood you have made a poor puncture, and you had better remove it at once and make a new puncture, after cleaning the needle of clot. Don't make a sieve of a patient's skin, as the number of necessary punctures for successful treatment have been made through one skin puncture. Always have your patient under perfect physical control, and then be an artist and not a butcher.

DISCUSSION

Dr. P. R. Billingsley (Sioux Falls): I think the essayist has well emphasized the need of haste in the diagnosis of epidemic cerebrospinal meningitis. Haste and the prompt institution of therapy are the essential things. As he has said, in these cases spinal puncture is not done soon enough. I do not believe it is necessary to wait for many indications, for the symptomatology to be well developed before spinal puncture is done. With a few symptoms indicating irritation of the cerebrospinal axis, fever, vomiting, and headache, perhaps slight rigidity—all these are sufficient to warrant us in doing spinal puncture.

While on that subject I would like to say that I do not think spinal puncture is done often enough as a diagnostic procedure. We have not enough temerity to do it. If we observe one or two simple rules we will find that spinal puncture carries with it a minimum of risk, and, I think, we will be eager to do it in more cases. One thing to remember is that if the intracranial pressure is too high, one should exercise some judgment. Intracranial pressure, the result of tumor formation or some similar process, with the sudden release of pressure following puncture, allowing the brain stem to prolapse through the foramen magnum, carries with it some risk. If that is borne in mind it is not dangerous.

The essayist mentioned the technic of spinal puncture. From my own point of view I rather think that in the technic of spinal puncture it is not essential whether the patient lies on the side or sits up.

I do not remember whether the essayist mentioned this point or not, namely, that when the diagnostic puncture is made one should then be prepared to give serum intraspinally. Do not withdraw the fluid and submit it to laboratory examination, but be prepared at that particular time, if the fluid is at all abnormal, if there is increased pressure, more particularly if there is slight cloudiness, to give serum at once, and the diagnosis can be made afterwards.

In the subsequent treatment we have to consider the types of sera corresponding to the types of meningococci. We will frequently find that if the serum used is of the proper type, improvement will result within the first twenty-four hours. If improvement does not follow in twenty-four to thirty-six hours, and if, in the meantime, we have been able to work out the type of offending organism, the serum can be changed. Improvement may not result from using one kind of serum, and if one uses another kind one may get better results.

In regard to the intravenous use of serum: I believe it is held to be good therapy to give serum, not only intraspinally, but intravenously in massive doses at the same time.

A point of interest which is perhaps more theoretical than practical is in connection with those types of meningitis in which the pathology is chiefly intracranial rather than intraspinal with the formation of exudate around the base and obstruction of the flow of fluid between the cranial cavity and the spinal cavity. In such cases puncture of the cistern has been recommended, but none would have the temerity to make puncture at the base of the skull between the occiput and the atlas without long practice on the cadaver.

Dr. N. J. Nessa (Sioux Falls): The essayist brought out the point relative to carriers in connection with this infection, which I presume is due to the fact that these bacteria are harbored in the lymphoid tissues of the nasopharynx. Personally, I have no experience in using radiation in this form of carrier, but I know by slight experience that diphtheria carriers, when given deep *x*-ray therapy to the nasopharynx, will produce shrinkage of the lymphoid tissues, and destroy the harbors of these bacteria, so that they readily clear up in a short time by bacteriological tests; and it seems to me that if this is a good means of doing away with diphtheria carriers, why should not the same rule apply with meningococcus carriers? The question of diphtheria carriers has been worked out in Detroit and some of the eastern cities with a great deal of satisfaction by use of *x*-ray treatments.

SURGICAL TREATMENT OF CHRONIC MASTOIDITIS*

By J. A. Pratt, M.D., F.A.C.S.
Instructor of Ophthalmology and Oto-Laryngology,
Medical School, University of Minnesota
MINNEAPOLIS

This paper deals with the surgical treatment of uncomplicated chronic mastoiditis where the patient has had discharging ears from one to twenty years' standing, but still retains some hearing, and for the cure of which we have been taught to perform a radical operation.

In 1911 Dr. Duel, of New York, in discussing a paper on "Modifications of the Radical Operation," stated, "If some operative method of posterior drainage could be performed, leaving the middle ear structures in place, it would succeed in reducing the number of cases of radical operations one-half."

At that time we had the answer, but, like hidden truths, it was too near to be seen. The complete, simple mastoidectomy, which means the eradication of the mastoid cells, antrum, and the aditus ad antrum, is the answer; and we believe the majority of surgeons could do this more successfully with the electrically driven burr than with any other method.

It is generally conceded that the antrum is the key to chronic mastoiditis. At birth it is of normal size, and, while it lies in different planes at different ages, it is practically always in the same position.

The mastoid cells develop and extend around the antrum, so, whether we have mastoid cells or not, we have an antrum. If we have a middle ear we always have an antrum. It is no wonder that the antrum is the center of trouble.

Anatomically, the Eustachian tube, the middle ear, the aditus ad antrum, the antrum, and the mastoid cells are to be considered, in the treatment of mastoiditis, for it is the chronic infection of all these parts that constitutes chronic mastoiditis.

As the Eustachian tube is the drain of all these cavities and as they are all connected, it is easily comprehended that in a general infection the drainage is inadequate, so, as soon as drainage is stagnant, we must open our drum membrane and, if this does not suffice, open the antrum and mastoid cells.

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*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

In a fully developed ear the antrum and the mastoid cells, with the aditus ad antrum, would constitute about two-thirds of the mucous membrane surface of the ear, thus leaving only about one-third to be occupied by the middle ear.

An early mastoidectomy in the acute stage brings a rapid recovery, so why, in the old chronic stages, if we completely eradicate two-thirds of the infected area, and at the same time establish an acute hyperemia, with temporary local drainage for the other one-third, have we not established nature in the best possible position to perfect a cure and retain what hearing the patient has? This is the method we use and we perform cures in the majority of chronic mastoids, which previously we thought could only be cured by the radical operation.

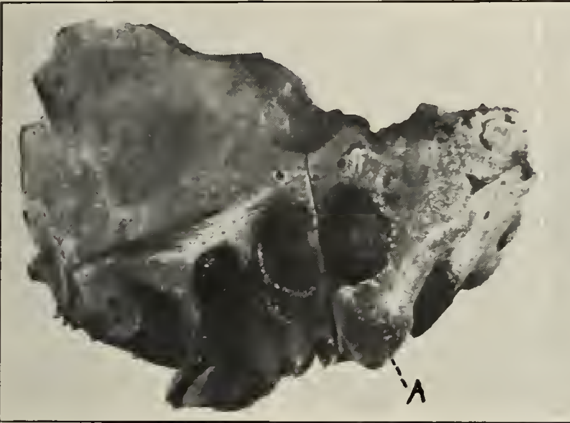

Fig. 1. A. Bone specimen which in life had been operated on for acute mastoiditis. The mastoid tip was not removed.

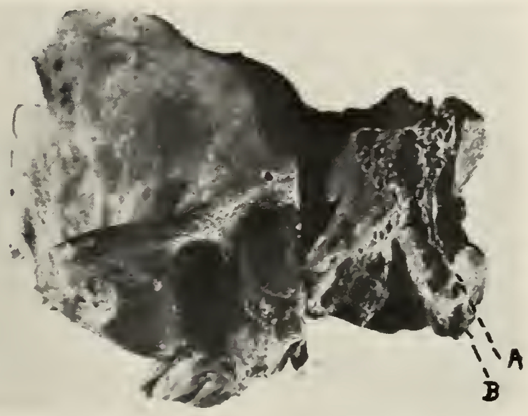

Fig. 2. The same specimen cut through the posterior canal wall.
A. The plate of bone running from the antrum to the tip is clearly shown.
B. The cells under this plate have been partly broken down with the burr.

There are certain anatomical conditions in the mastoid, which I have not seen described, that interfere many times with the success of the simple mastoidectomy.

There is a plate of bone extending from the antrum to the tip of the mastoid at about a depth of 10 millimeters from the cortex, under which lies a chain of cells. When the operator reaches this plate he is apt to stop his operation and conclude he has finished, but he is leaving behind a necrotic area that continues the trouble. We have found this condition present in many cases where we have re-operated.

We have operated on chronic mastoiditis where the bone, down to this plate, was sclerosed, while under the plate were necrotic cells extending from the antrum to the tip, with a fairly large cell in the tip filled with granulations.

For years, in our own operations, we have been particular to remove this plate, which we believe accounts for what success we have in operating.

The principal reason that we have not been more successful with our conservative mastoid operations, is due to fear, which caused incomplete operations.

The location of the sinus and whether we will open it with our chisel or curette is our first fear, and we lose confidence in ourselves. Next we worry about the nerve and are fearful lest we cut it, and by this time our confidence in ourselves is so shattered we are willing and ready to stop.

We have two methods of overcoming fear; the first is knowledge, the second is the electrically driven burr.

I have used the burr in mastoid work for more than fourteen years and have never injured the sinus, dura, or nerve, the knowledge of which I owe Dr. Frank Allport, whose clinic I had the pleasure and profit to attend for two years.

If we know where to expect our sinus and nerve then with the burr that will answer our slightest touch, and only cut resisting tissue, we can uncover the sinus or the dura. With the burr handle held in the hand like a pen we are more apt to avoid the nerve by being able to remove the smallest amount of bone, by the lightest touch, at the dangerous points.

The highest success is possible only in teamwork, which tends to rapid and successful operating. I have noticed this in particular in the past years since my nephew and I have been together.

While the operation I wish to describe is simply a complete exenteration of the mastoid cells, the antrum, and the aditus ad antrum, thus leaving only the middle ear, it is complete and, in my opinion, is the gold under out noses for which we have been to foreign lands to discover.

OPERATION

The instruments we use are as follows:

Knife
Periosteum elevator
Allport retractor
Mallet
Large chisel
Hemostats
Burr handle
Burrs
Silver probe
Shaffer's small mastoid curette
Syringe
Michel clips
Michel clip holder
Drainage tube
Curved scissors

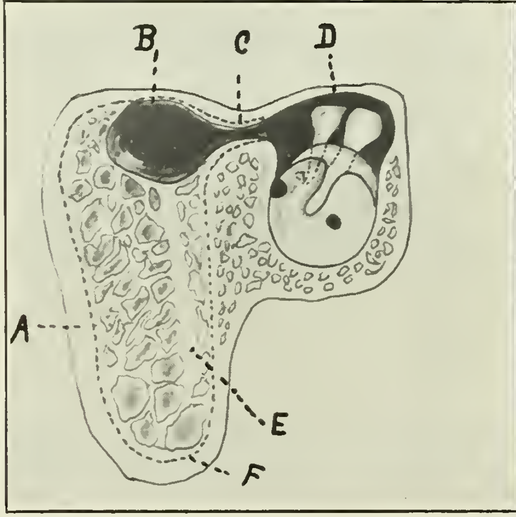

Fig. 3. A diagrammatic drawing showing: A, Mastoid cells; B, Antrum; C, Aditus ad antrum; D, Middle ear proper; E, Plate of bone extending from antrum to mastoid tip; F, Dotted line showing complete exenteration.

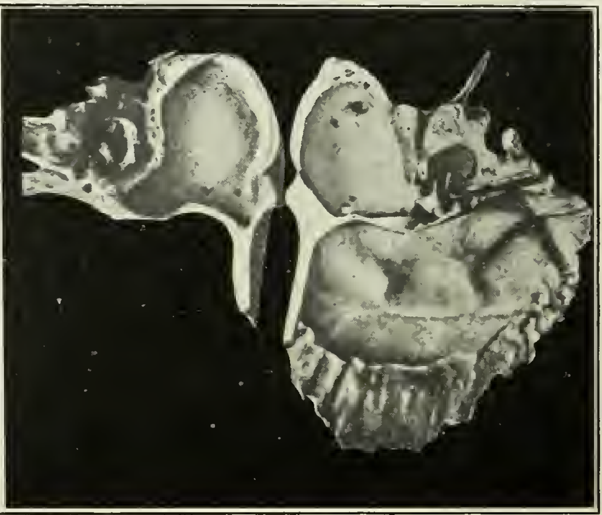

Fig. 4. A complete exenteration of the mastoid cells, antrum and aditus ad antrum, with the electric burr. The middle ear proper, with the bones, is intact.

The usual surgical precautions are taken and if the patient is a woman the hair is not cut, but dressed back away from the field of operation by using non-flexible collodion. The incision is started just below and one-fourth inch back of the upper insertion of the ear, following its curve down to the level of the lower border of the external canal, cutting, if possible, through the skin with the first stroke of the knife and through the periosteum to the bone with the second. In this position and length of the cut you will generally miss the attachment of the temporal muscle above and the posterior auricular artery below, thus avoiding spurting bleeding and saving time.

With the periosteum elevator, the periosteum is quickly elevated from the bone backward and forward until the posterior and superior edge of the bony canal can be examined.

Allport retractors are quickly placed, and the wound spread, generally with very little loss of blood and no application of the artery forceps.

A rapid survey of the field is now made and an imaginary horizontal line is run across the temporal bone at the upper border of the bony canal, and a perpendicular line is dropped from it along the posterior border of the bony canal. We have thus a right angle lying beside the spine of Henle that indicates under its depths the position of the antrum.

After removing the attachment of the sternomastoid muscle from the tip of the mastoid with the curved scissors, then with the large chisel a piece of the cortex is removed with a few strokes, running from the upper to the lower border of the bony canal along the posterior border and extending back about 10 millimeters. We do this to save time and to relieve the burr.

With the sharp, heavy burr, a kidney-shaped opening, about 20 millimeters long, 10 millimeters wide, and 10 millimeters deep, is burred into the mastoid without stopping. The assistant now cleans out the débris and from now on directs the work of the burr.

The mastoid proper is thoroughly cleaned first, and, if no complication of the sinus is expected, the width of the bony wound is kept as near 10 millimeters as possible. A 10 millimeter bone wound will leave practically no depression.

The antrum is now opened and the external and superior wall burred and curetted clean; the internal wall is curetted only, as it is under this we have the horizontal canal.

The external and superior wall of the aditus ad antrum are curetted and burred while the internal wall and floor are very lightly curetted while the mouth is watched, for here lies the facial nerve as it turns to pass down in the internal part of the posterior bony wall on its way to the stylomastoid foramen.

The sinus, horizontal canal, and facial nerve are practically always covered by dense bone, which warns of their position, but we must always watch for them as if they had no bony covering.

While it is difficult and dangerous work to exenterate the hidden cells with the chisel and curette, with the burr and its delicate touch, these difficulties are all swept away.

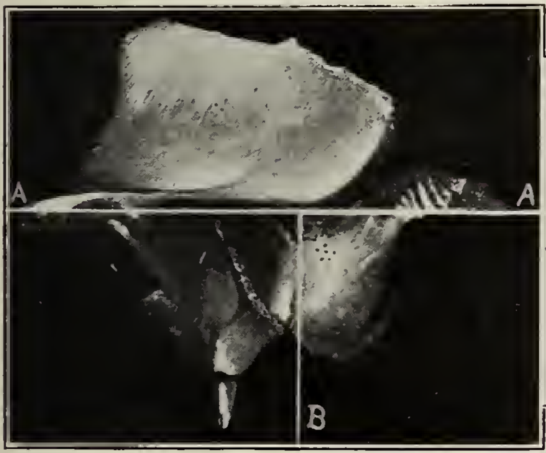

Fig. 5. A temporal bone with the imaginary lines drawn, the right angle of which gives the position of the antrum.

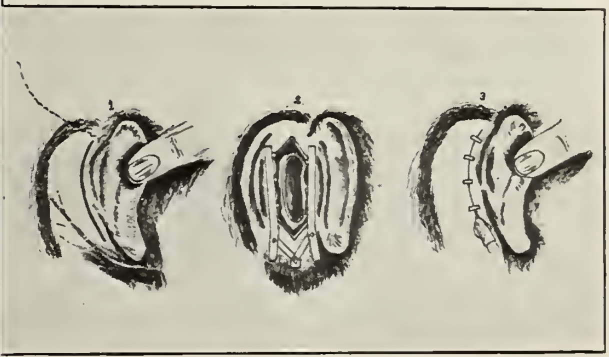

Fig. 6. 1. The position of the cut to avoid the upper and lower arteries.
2. The shape and relative size of the bony wound.
3. Closure of wound with spiral cut drainage tube in position.

The upper part of the attic is lightly curetted, if it can be reached without disturbing the malleus and incus bones of the ear. The cavity is now washed, and any rough or suspicious spots are cleaned up with the burr, and all necrotic tissue is followed to clean bone.

After a second washing the wound is flushed with alcohol and dried, then a spiral cut rubber tube, 5 millimeters in diameter, lined with gauze, is inserted from the lower angle of the wound up into the antrum and the wound tightly closed down to the tube with the Michel clips.

The external canal is now packed against the canal wall with gauze to facilitate reattachment.

The dressing is now applied to be removed in three days, at which time the clips are also removed.

The first or second day following the operation, if there is no fever or previous contra-indications, the patient is allowed to go home and be around the house, and call at the office for the first dressing and to have the sutures removed. Seventy-five per cent of our patients leave the hospital the following day, and this is due, we think, to lack of shock in the burr operation.

Unless the tube comes out during the removal of the dressing, it is allowed to remain for one week, discharge being removed by swabs pressed down the tube to the antrum in the same manner as an acute suppurating ear is treated with the dry method. At the end of a week the tube is removed and the cavity (which is generally the size of the tube) is thoroughly irrigated, dried, and the tube replaced. The tube is now removed at each dressing and the cavity dried with swabs. At the end of two weeks, unless the discharge is too excessive, it is removed.

The ear generally heals in twenty-one days, rarely going to four weeks. In this manner of dressing, we have a partial organized blood clot in the majority of cases.

DISCUSSION

Dr. John H. Rindlaub (Fargo): Dr. Pratt very kindly sent me his paper in advance and I have looked it over very carefully. I think it would be a very good thing if all essayists would do this, for I feel sure it would make for a better meeting.

Coming out on the train one of the gentleman said he had written twice to the essayist whose paper he is to discuss, asking for a copy, but had not received it, and consequently his discussion could not be very complete

First, I want to express my appreciation of Dr. Pratt's admirable paper. I dare say you will all agree with me when I suggest that it is one of the most readable, sensible, and sane papers that we have had placed before us. Perhaps my judgment may be biased because of the fact that, with a few modifications, Dr. Pratt has described the operation performed by my associates and myself for many years. Our procedure differs little from his. Formerly we used the electric burr and trephine a great deal in our bone work, but we have seldom used them of late years. We fell into the habit of not using them because it was more convenient to use other methods, but I cannot say we have obtained any better results. If a sinus already exists in the bone, entrance to the abscess cavity is sought through this opening. Should there be no fistula we make an opening with Pope's trephine through the suprameatal triangle located between the posterior margin of the bony canal and the posterior root of the zygoma. This opening gives one a lead toward the antrum, and one must depend upon the anatomical landmarks already described for his guidance. The antrum is sought by clipping cautiously the postero-superior meatal wall with special Jansen forceps, curette, or burr, beginning above and behind the spine of Henle and proceeding inwards to the necessary depth until the antrum is reached. The suprameatal spine is to be included in the bone removed. Whether the opening into the antrum is to be increased or the remaining necrosed cells exenterated at this time depends upon circumstances and the individual operator.

In searching for the small deeply placed antrum in an eburnated mastoid process the operator needs knowledge, faith, and boldness, and, I might add, a probe, which I see Dr. Pratt has included in his instrumentarium. Dr. Politzer often impressed upon us that the probe was the most valuable instrument in performing a mastoid operation and often kept us out of danger.

There are now so many different procedures for doing the so-called "simple" mastoid operation that Dr. Lillie has advocated, and not without reason, abolishing the term "simple."

Dr. Pratt has justly emphasized the anatomical relations, and it has always been a wonder to me that, with our abnormal nares and nasopharynxes, we do not have more otorrheas and mastoids due to infection passing up the Eustachian tube with its subsequent swelling and closure, which, as Dr. Pratt points out, prevents drainage from the middle ear and the connecting territory.

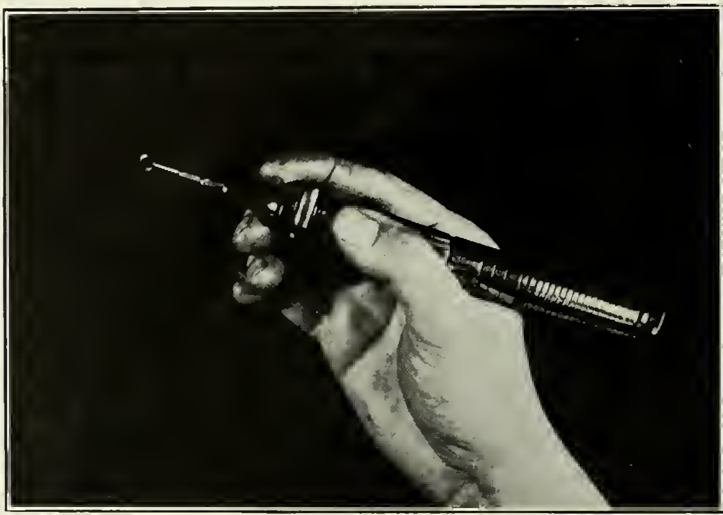

Fig. 7. Mode of holding of the burr handle for delicate work.

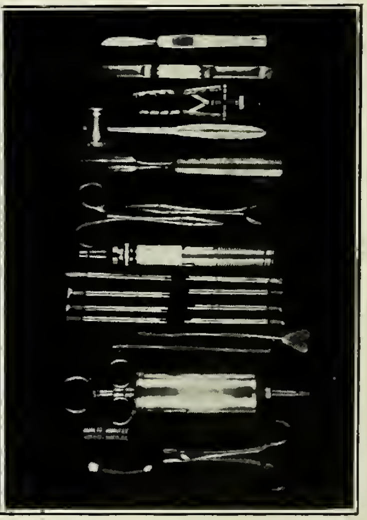

Fig. 8. Instruments used.

The radical mastoid operation to which otologists frequently refer consists in exenterating all the mastoid cells combined with resection of the posterior wall of the auditory meatus and removal of the ossicles, so that the meatus, tympanum, and the mastoid are thrown into one cavity, all the walls of which have been carefully curetted and finally become cicatrized and epidermized. Such radical work the essayist does not advise except in a few cases. Undoubtedly the author's prime reasons for doing the "simple" (complete) mastoidectomy are as follows:

1. It is most favorable for the retention of the hearing function.
2. There is less shock.
3. It practically insures the patient against possible serious and fatal complications, such as cerebral abscess, meningitis, lateral sinus thrombosis, and facial paralysis.

4. "All necrotic tissue is followed to the clean bone," thus guarding against extension of the destructive pyogenic process.

5. Lastly, but by no means unimportant, it terminates an otherwise persistent otorrhea.

Dr. Jansen, of Berlin, uses the burr almost entirely to smooth out the cavity, and in cases where one wants to clean down the facial ridge it is excellent.

We are all familiar with the work of Dr. Frank Allport, who has perhaps done more to popularize the burr in America than any other man, although Boetcher and Beck should also be mentioned in that connection.

There is only one point that I take issue on with Dr. Pratt. He says that 75 per cent of his cases leave the hospital the day following the operation. It seems to me that is too soon. Years ago before we had the splendid hospital facilities that we now have we were compelled to operate even in our offices and let the patient return home as soon as possible. I am convinced that our results were not then as good as they are now. It has been our experience, even though there were no complications, that patients made a better recovery by remaining a few more days in the hospital where they are under observation, and their diet and bowels regulated. Then also no one will deny that the vital resistance of every patient is somewhat lowered after a general anesthetic. While I have done the operation under local anesthesia my own limited experience and the observation of others is such that this procedure does not appeal to me.

Any paper that makes us think is certainly valuable. I quite agree with practically all that has been said.

I congratulate Dr. Pratt upon his masterly presentation. The subject is a most important one, and we are fortunate in having it so ably discussed by the essayist.

Dr. Pratt (closing): In reference to the time that mastoid cases should leave the hospital: Our advocating the removal on the second or third day in uncomplicated cases seems to shock a great many. Why, I cannot say. You will perform a tonsillectomy, giving an anesthetic oftentimes for a longer period than we use for a mastoidectomy, the patient losing a great deal more blood, and there is hardly a murmur when the patient is sent home the night of the operation.

When we do a mastoidectomy with the burr, the work is rapid and clean and we do not have the shock and headache frequently seen when the mallet and chisel are used. We have simply opened suppurating cells and have not interfered with any vital portion, giving the patient not only relief from pain, but absorption from the suppurating process. After this relief practically all of our patients want to go home. Children particularly do better at home than in a hospital.

Just recently we operated on a woman sixty-eight years of age who had suffered from mastoid infection for three months. Perforation had taken place, and the ear was torn from its attachments by the accumulation of pus until it looked like the familiar child's case. She was so positive of a severe reaction following the operation that she made arrangements to stay in the hospital for three weeks, but the next day at noon, following the operation, she telephoned and wanted to go home. She was dressed at the office on the third day and had an uneventful recovery.

We allow patients to go home only when their temperatures are normal, and general conditions look good. We believe the home surroundings are more conducive to rapid recovery.

I am positive if we all used the burr, instead of the chisel, we should have more rapid and better healing, but I know from personal experience it is hard to change one's methods. We should always think of the welfare of the patient.

SIR JOSEPH LISTER*

By Henry L. Staples, A.M., M.D.

MINNEAPOLIS

This is not intended to be a scientific paper, merely a meagre and imperfect history of a very great man, together with a few personal reminiscences.

There were about one hundred and fifty physicians practicing in Minneapolis when I came to the city, and of these only ten or twelve remain. We have been good friends many years, and, if any pass out before me, I shall feel very sorrowful. I have always felt a sense of gratitude to this Society, which cannot be fully repaid by mere words. The members have honored me by making me its presiding officer, and also have listened patiently to my various effusions. Dr. Shutter, the eminent divine, recently remarked that he came here forty years ago with five dollars. By dint of economy and shrewdness he still had the five. A few years later, I came along with the proverbial five, which soon disappeared. Gaunt penury stared me in the face. I liked the town, but so far as I was concerned everybody seemed in radiant health and similar to a Colorado town with a death-rate of one and a doctor who starved. At that time Dr. Kimball was located on Washington avenue, the Holy of Holies of the medical men. He received my call very kindly, and knowing that Maine men were always hungry and more thirsty he invited me to dinner. I accepted with alacrity, and the repast was enjoyable, but, best of all, dear Mrs.

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*Presented before the Hennepin County Medical Society, October, 1921.

Kimball talked with me and said, "Don't worry and keep up courage, the doctor had troubles when he started." I wondered if she remembered that verse:

"Words of kindness, how they cheer us."

A little later the doctor sent me a patient, a saloon-keeper. I was a little dubious about the compensation; however, he survived the disease and his medical attendant, and insisted on giving more money than I charged.

I fear after that episode that I, for a time, at least, catered to the ungodly. With part of this tainted money, I set out to join the county society, knowing the profits and pleasures of a similar society in the East.

A physician, evidently not a member, said, "Don't do it; only about half a dozen attend, and the meeting usually breaks up in a free fight in half an hour." The legend runs that in very early society days a physician appeared wearing an elaborate white shirt with clothing and polished shoes to match. Such an innovation would not do, and he was denied admission. One rainy night the boiled shirt doctor was voted in; later the opposition appearing in force a regular Armageddon ensued, and broken furniture and tufts of whiskers decorated the society rooms.

From this cave man period a magnificent organization has developed, a mere forerunner of the future.

We now come to the subject of the evening for whom I more and more have a hero worship. A commercial doctor stated that Lister was the originator and founder of Listerine. How are mighty names misused!

Sir Joseph Lister was born in London in April, 1827. His father was of good old Quaker stock and a man of unusual ability. He was a respectable wine merchant and believed thoroughly with the ancient poet that:

"Wine and wine only has magic to scare
Despondency's gloom and the torments of care."

His leisure hours were devoted to optics, and he was, to a degree, the founder of modern microscopy by the discovery of important equations, which led to the production of the acromatic lens. He was an excellent Latin scholar and well versed in French and German.

Joseph's mother was a cultivated, beautiful woman of strong character. This emphasizes Dr. Holmes' dictum that one should select his parents with great care.

He attended private schools and was trained in the Latin classics by his father. His school papers frequently dealt with the human skeleton and other anatomical subjects. He decided, while still young, to be a surgeon. At the age of seventeen he was sent to the University College, graduating three years later with the degree of A.B. In 1848 he commenced his medical studies shortly after the discovery of anesthetics, but the change produced in surgery came very gradually.

Operations were still performed at high speed and in a slap-dash fashion. When my father, now living, started to study medicine, one of the first operations he witnessed was performed on a boy to remove a lower limb for a tuberculous knee-joint. He was given two or three glasses of whisky, strapped on a board, and the operation performed. The screams were pitiful, and he died almost immediately from shock and hemorrhage. After a few similar experiences father selected farming and an occasional glass of hard cider as his life work. The latter he took as a medicine only, being an itinerant preacher also, saying that it turned his liver better than his mother's doses. One feelingly remarked, "Our New England mothers could stir up doses that would gripe the inards of a cast iron monkey."

At this time inflammations, suppurations, erysipelas, and gangrene were the common sequellæ of operations. While house surgeon, Lister was put in charge of certain cases of hospital gangrene and pyemia. He carefully observed the phenomena of the diseases and was early led to suspect their parasitic nature, searching carefully with the microscope to discover the fungus, soon convincing himself of the cardinal truth that the causes were purely local. In such surroundings he obtained his first impressions of his chosen life work.

An older friend described him as "one who in the total excels any one I know or have known in bright promises of the future." He did much original work and wrote many papers during his medical course.

In 1852 he was granted a Fellowship of the Royal Society of Surgeons and soon after visited Syme in Edinburgh, who was at that time the first British surgeon. They were mutually attracted, and Lister determined to remain in Edinburgh. There he met famous men drawn from all over the world on account of the prominence of Syme. He was appointed to deliver some lectures, but while in their preparation Sir Joseph was completely thrown off his balance wheel by his distraction for Agnes, the beautiful daughter of his benefactor. Like Shakespeare's lover, "Sighing like a furnace with woeful ballad," his wits nearly left him. The young lady settled the question favorably in a short time, and the lectures were resumed. Quakers were not permitted to marry out of the society, so he resigned and became a member of the Church of England. It is said this change did not disturb him mentally to any extent. They were married in April, 1856, and visited many of the leading centers of Europe. In Vienna he met Rokitansky and saw his remarkable pathological museum. On his return to Edinburgh he resumed his work dealing with surgical pathology and operative surgery. He also wrote important papers on inflammation and microscopical anatomy.

Mrs. Lister, medically inclined by inheritance, entered keenly into his scientific work and assisted him greatly, which she continued to do through her life. Many of his observations were in her hand-writing. It is said that his great success was in a large measure due to her constant support and encouragement.

In 1860 he was elected professor of surgery in the University of Glasgow, where he became an enthusiastic teacher and operator. His first lecture dwelt on the importance of serviceable stumps and showed a patient able to dance the Highland Fling after the amputation of both legs. It was here that his most important work, the discovery of the principles of antiseptic surgery, took place. His clinics were soon the largest in the British Isles. My old students will recall my endeavors to interest them in the study of medical nomenclature. The word antiseptic occurs first in medical literature about 1750. It is a Greek derivation—*anti*, against, and *septikos*, making rotten or putrid.

Pliny, the Latin writer, borrows the term *septicus*. These were the days of *laudable* pus. The simplest operation might be fatal. Putrefaction and purulent infections were thought due to the oxygen in the air. How brought about was conjectural. Erysipelas, pyemia, septicemia, hospital gangrene and tetanus reigned supreme.

In Glasgow wards were frequently closed on account of the frightful mortality. The infirmary was a hotbed of septic disease. At Nurenberg the hospital authorities considered pulling down the Allgemeines Krankenhaus. Assistants went from erysipelas wards to healthy cases. The operating coats of the operators and their associates acquired an accumulation of filth of which they appeared justly proud. Surgeons passed from post-mortems to the operating-rooms, and referred with approbation to a surgical stink. The mortality at Edinburgh after amputations was 43 per cent; at Glasgow 40 per cent; in French hospitals 60 per cent. Billroth reported 46 per cent. Sir James Simpson, the discoverer of chloroform, said a man was safer in the front line at Waterloo than on the operating-table.

An old country doctor once took me to assist him in dressing a leg amputation, performed ten days before. The dressings were soaked in pus, and I nearly fainted from the stench. He yanked away at two silk ligatures hanging from the stump, and thanked God that he got no secondary hemorrhage.

The work of Semmelweis made no impression. Ignatz Philip Semmelweis was a Hungarian physician born in 1818. He was educated at Budapest and Vienna, graduating at the latter place in 1844, and was appointed assistant professor in the maternity department under Johann Klein. In the previous eighteen months, of about 5,000 deliveries 1,000 died. Women delivered before arrival of the physician and before examination would escape. The students came from the dissecting-rooms and made examinations after gently washing their hands in soap and water. Semmelweis prescribed ablutions of chlorinated lime water, and the mortality the second year fell to 1.20 per cent. Klein drove him from Vienna on account of the Hungarian revolution, and he located in Budapest, a city as terribly affected as Vienna. By antiseptic methods he reduced the mortality to 0.85 per cent, about what we have now. He was so maligned by his opponents that he was driven to an insane asylum, bringing with him a dissecting wound of which he died in 1865. He wrote very little, knew nothing of the microbic cause of sepsis, and died almost forgotten.

Lister, in 1883, was given a great banquet at Budapest and Semmelweis was not mentioned. Later Dr. Duka, a Hungarian physician, practicing in London, wrote his biography and sent it to Lister. After that Lord Lister graciously acknowledged Semmelweis in a measure as his forerunner. Semmelweis, like John the Baptist, could have preached:

"There cometh one mightier than I after me, the latchet of whose shoe I am not worthy to unloose."

Lister was working and teaching at Glasgow under horrible septic conditions, but he did not believe the results inevitable and was constantly searching to find out the cause of the mortality. Antiseptics were used even by the ancient Egyptians, and at this time glycerine was employed in hospital gangrene. Alcohol was freely made use of on the Continent. Iodine was discovered in 1811, used for a time, and then forgotten. Chlorine and chlorinated lime were recognized as powerful disinfectants. Carbolic acid was discovered by Runge in 1834, and in 1860 and 1863 Jules Lemaine employed it in France in the treatment of wounds and sores.

These were not used to prevent the occurrence of putrefaction, but with the aim of neutralizing its effects after it had developed.

The exception to this rule was Semmelweis as stated. Here we come to the crowning event.

In 1865 Louis Pasteur, the celebrated French chemist, like the minute man at Lexington, fired the shot heard round the world. He demonstrated in a masterly fashion that putrefaction was caused by microörganisms, and that they were responsible for wound infections. These do not arise *de novo*, but spring always like higher organisms from parents like themselves. In his researches he was greatly aided by his highly educated and intelligent wife, Madame Pasteur. This was the greatest discovery in all the ages, and the people could joyfully cry:

"Sound the loud timbrel over Egypt's dark sea,
Jehovah has triumphed, her people are free."

Let us consider this period. I was born in 1859. In 1865 Pasteur announced his discoveries, and Lister utilized them, but it took years for the profession to adopt the theory of microörganisms in disease. Up to my manhood I and everybody else were liable to be plunged headlong into a horrible septic festering cesspool. The child-bearing women were most to be pitied. Prior to my advent in this city I had an opportunity to observe the wonderful obstetric work of Lusk in New York. He had Semmelweis distanced. On the street where I first located here an old-fashioned doctor had one woman dead and another dying in the puerperal state. His fingernails were in deep mourning, and he belonged to the army of the unwashed. At that time he was dressing some erysipelas cases. Innocently inquiring the cause of death, he replied the slow fever of childbed. Pneumonia was prevalent the next winter, and he was gathered to his fathers, thus relieving the pregnant women of a direful pestilence. A life insurance director remarked that nearly all personal history reports from 1860 to 1890 contained one or more deaths from childbirth, sisters, mother or grandmothers.

The enormous significance of the discovery of Pasteur was clearly apparent to Lister, and its application to surgical operations in his hands was productive of the most beneficient results and revolutionized surgical work. Antiseptics, chiefly carbolic acid of various strengths, were employed, having especially good results with compound fractures, saving ten out of eleven cases, an unheard of success, as all usually died. The various salts of mercury were tried, also boric acid. This led to gauze dressings impregnated with many drugs and was a distinct improvement in carrying out antiseptic treatment. Secondary hemorrhage was a great danger in septic wounds, and Lister recognized why the ligatures sloughed away. He experimented for years exhaustively to find a ligature strong enough and yet capable of being absorbed by the body fluids. The catgut ligatures of today are the result of his genius.

In 1869 Syme had an apoplexy, and Lister was elected his successor and thus became the first surgeon in Scotland. He gave but two lectures weekly, which were enthusiastically attended, devoting himself more to hospital and private practice. It is said that his patients almost worshipped him. A certain sublime confidence, a complex phenomenon existed, now almost extinct.

Lister published many papers on bacterial subjects and was constantly in touch with Pasteur, the correspondence between the two being delightfully interesting. Pasteur's teaching favored the air-born theory, resulting in Lister's evolving the carbolic acid spray to cleanse the air and destroy the bacteria. The air, the surgeon's hands, his instruments, and the skin of the patient must all be sterilized. His enemies bitterly fought him and denominated the spray as the donkey engine.

Bruns, of Tübingen, condemned the spray in a powerful paper entitled "Fort mit dem spray." Some one liberally translated this, "To hell with the spray." Lister, in 1887, finally abandoned the spray, stating that pathogenic organisms were not plentiful in the air and that he felt ashamed to have recommended it. Aside from the spray, the antiseptic methods became more and more established, the junior surgeons-physicians more readily accepted his views. Germany and all the Teutonic countries were enthusiastic long before England. Von Bergman was a disciple of Lister but preached that antisepsis was only a stepping-stone to asepsis, which would be the surgical procedure of the future. Now the two are combined, but the Carrel-Dakin treatment in vogue during the recent war shows a partial reversion to antiseptics.

In 1875 Lister visited the university towns of Germany, and his reception was that of a triumphal procession. He attended next year the International Medical Congress at Philadelphia and was made president of the Surgical Section. In 1877 he was elected to the Chair of Surgery at Kings College, London. That city had not fully adopted his procedures, and he felt it was his duty to accept. He brought four trained men with him from Edinburgh and established his methods, often vigorously opposed by the older medical men.

Patients came to him from all parts of the British Isles in whom he took enthusiastic interest, while they regarded him with veneration and as godlike. He usually left the fee to the patient's decision, so did not accumulate a large fortune.

I have in this respect imitated Lister to a slight degree without knowing it. When I came here I rented a small office of another physician for which he kindly accepted compensation in work. Down the hall was a venerable appearing physician who was sparking old maids on an electric machine with apparent financial success. My doctor took up the sport, and one of his first patients was the wife of a tailor. He treated her ten times when the tailor expostulated, saying that she was no better physically while her disposition was decidedly worse, and he refused payment. We decided that such base ingratitude should be punished and brought suit in the municipal court for twenty dollars. After spending a day at the court house the judge decided that ten dollars was adequate. The tailor gave the doctor a pair of pants, while the lawyer took the pants for his trouble. I then and there decided as my accounts were usually small it was preferable to earn the money again than to invoke the majesty of the law. Last year I received the following letter from Michigan: "Twenty-five years ago you attended my wife satisfactorily and I received a bill for twenty-five dollars. I could not pay it then and wouldn't if I could. Now I am in the fuel business and, of course, making money, so inclose $25.00 plus $23.00 interest." Had I been more active in my collections undoubtedly more would have been received, but I might have developed arterial sclerosis from over-eating, so this is probably the better outcome. We are not hucksters or horse jockeys in disguise, or should not be, but high ideal professional men, on a par with the clergy or university teachers. "Press on toward the mark for the prize of your high calling."

I regret to say that rumors of atrocious extortions are occasionally whispered about that would make the angels weep, the archangels veil their faces and cause one of the forty thieves mentioned in the Arabian Nights to drop dead from sheer envy. Such actions reflect not only on the culprit but also on all of us, much to our detriment, and they should not be tolerated.

The decree of John Hopkins regulating professional fees was brought about by public sentiment in this respect.

Lister travelled extensively and attended medical meetings all over Europe. At the Pasteur Jubilee, 1892, held at the Sorbonne he made a delightful speech in appreciation of the work of the great Frenchman. At the close Pasteur arose and embraced Lister. This is described as a most dramatic occasion. Two men appeared in this temple of highest learning who had given more happiness and comfort to the human race than any one else since Noah planted a vineyard.

During this year he was made a peer of the realm and assumed the title of Lord Lister. The next year Lady Lister died at the Italian Riviera of pneumonia, and he resigned from Kings College. He gave up experimental work, but continued to attend and often preside over medical meetings. His last years were those of labor and sorrow, his sight and hearing being so much affected that he could neither read nor write. Miss Syme, his sister-in-law, continually ministered to his comfort, for he had no children. He died in 1912, and at his request was buried by the side of his wife, instead of in Westminster Abbey.

I take pleasure in presenting to this society a portrait of Lord Lister containing a facsimile autograph, a companion to John Hunter given last year. One cannot look upon that kindly, highly intellectual countenance and then commit an unkind act against his patient or his brother practitioner.

Where the Kaiser has destroyed his millions and amid the execrations and maledictions of an outraged world will go down to black Tartarus where the worm dieth not and the fire is not quenched, Lister, undoubtedly, sits on high in the seventh heaven near the throne, hearking to the peans of the redeemed, for he has saved his ten millions. Without conceit he could say with the Latin poet Horace:

"I've reared a monument my own
  More durable than brass;
Yea, kingly pyramids of stone
  In height it doth surpass.

Rain shall not sap nor driving blast
  Disturb its settled base,
Nor countless ages rolling past
  Its symmetry deface."

Lister belongs to the countless ages. He belonged to a society called Friends, and all the world called him friend. Venerate his name all mortals for the blessings he has bestowed on a suffering humanity.

DIARRHEAS IN CHILDREN*

By B. A. Melgaard, M.D.
SIOUX CITY, IOWA

I think no apology need be made for presenting the subject of infantile diarrheas and taking a few minutes of this society's time in discussing this group of diseases, which annually takes its toll by the thousands.

Much harm has been done in over-emphasizing the bacteriology of these cases, resulting in the so-called intestinal antisepsis treatment and the giving of friendly bacterial solutions. We still hear the echo of the cry of the champions of the "Clean up, clean out, and keep clean" faddists, the noise of which is more real than the argument. The theories advanced by the followers of this method are supposed to be sustained by the prevalence of intestinal disorders during the summer months. At this time conditions are favorable for the multiplication of bacteria, and the bowel forms a ready host. The fallacy of this argument will be seen at once when we realize that the excessive heat of summer is only a factor in devitalizing the infant and making it impossible to carry the food load that it would carry under normal temperatures.

The classical thing to do would be to give you Finkelstein's classification of nutritional disorders, which is now accepted by pediatricians everywhere. It is as follows: (1) Disturbance of balance; (2) the stage of dyspepsia; (3) the stage of decomposition, better called athrepsia; and (4) intoxication. Unfortunately, the consultant rarely sees the baby during the first two stages, but usually finds the infant either in the athreptic or toxic stage. By this I do not mean that these graduations are always present. We frequently have a case of intoxication right from the start. Combined with this classification we might discuss Czerney's theories of food injury; injury due to fat; injury due to carbohydrate; starch injury; and injury due to protein. These, however, can be found in any text-book on pediatrics and must be mastered by every physician who would treat children intelligently. To Czerney and Finkelstein we are indebted as to none others for getting us on the right track in interpreting and treating the nutritional disturbances in children.

First of all, what constitutes a diarrhea? I recently saw a child, fourteen months old, that was being treated for diarrhea. Daily calomel and castor oil and saline enemas were being given; also bismuth and pepsin. The child could not sleep nights, so for good measure it was being given bromides. Of course the stools were green, watery, and full of mucus. The history revealed that the baby was totally breast-fed, never having been given anything else. The physician had advised against weaning or giving other food during the hot months. Meanwhile the baby was starving to death, and the treatment was hurrying it along. Under proper feeding the child made a prompt recovery. A mother, seeing green stools and mucus, is at once alarmed and calls for help. It is here that care needs to be taken not to transform an innocent affair into a pathological one. In such cases, first take a careful history, and often you will find that the condition has been caused by a purge given some days or hours previously, causing a temporary starvation stool. The green color is due to starvation, while the mucus is simply the result of excessive peristalsis. Mucus in the stool does not indicate a pathological condition. Pus does and must be distinguished. Possibly you will find that the child is just convalescing from an illness where there has been a starvation diet for a few days, with perhaps calomel and castor oil. Imagine the injury that will result if you order purging and starvation for these children. These little patients must be fed, not starved, and in simple cases a regular formula, cut perhaps in sugar and fat, is taken care of without any trouble. In more severe instances we give the one food element which, together with being the least irritant, is also the only one capable of sustaining life—namely, protein.

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*Presented at the annual meeting of the Sioux Valley Medical Association, June 14, 1922.

Diarrheas are due to food intolerance, barring only true infectious diarrhea, and even that is partially so in this class. This is the thought I want to drive home if all else fails to register. It is a problem of food, and not of drugs. Many diarrheas come on as the sequel to or concomitant with a parenteral infection and are not of intestinal origin. By parenteral infection we mean an infection outside of the gastro-intestinal tract. We have all seen the pneumonias in infancy which at about the time of the crisis develop enteritis and always of a severe type. In diarrheas that we cannot account for as being due to food injury, we will usually find an otitis media, bronchitis, tonsillitis, pyelitis, or other infection. Therefore it is just as important carefully to examine the ear drum as it is to palpate the abdomen, and equally important to make a careful examination of the chest in search for the trouble that is lowering the child's resistance and so making a relative food intolerance. In a recent case referred by Dr. McCabe, of Emerson, Neb., incising two bulging ear drums caused a prompt drop in temperature from 104° to normal and the prompt relief of a toxic enteritis in a breast-fed baby. These cases call for carefully supervised feeding until the food tolerance is re-established. In any infection, promptly cut the foods that are badly handled and push those that are of known value. This means a reduction in fats and sugar and a temporary increase in protein.

If we study the stools only without careful history-taking and physical examination we are apt to get into trouble. Starvation is just as dangerous as over-feeding. We are apt to err on the side of under-feeding if we judge by the stools only. We must remember that a starvation stool is a green stool. We frequently see infants that have been given castor oil and perhaps fed on barley water with the complaint that "the stools are still green." Such an infant's stool will remain green until we feed it. This must be done promptly, and, of course, stop the purges. I recently saw an infant that had been sick for three days with a history of its having been given a daily course of calomel in divided doses. The bowels were being flushed with cold water every half hour. Barley water was the only nutriment being given. When I saw the baby she had a temperature of 105° with blood and mucus in the stools. The abdomen was distended, and the child was fretful and crying. The picture was one of profound intoxication. The treatment that was being given this infant was tragic. It was producing the trouble rather than relieving it. When the calomel and colonic flushings were stopped and the child fed a fat- and sugar-free mixture, with gradual increase from this to its full caloric needs, it promptly got well. The temperature dropped to normal within twenty-four hours and there was not a bowel movement for thirty-six hours. We had quite a time to keep the mother from giving castor oil or an enema, for she was alarmed because the bowels did not move.

It is following such a siege that the mother becomes disturbed because the bowels have not moved for twenty-four hours. This is the result of the over-zealous teaching in some of our public health literature that a baby must have one or two bowel movements every day. Much harm has been done in this way. The mother, if permitted to give castor oil or enemas, may start the whole trouble over again. Right here we need to do some re-education about the indiscriminate giving of laxatives, enemas, and suppositories. Tell the mother that a constipated baby indicates a well baby, meaning that the food is being so well assimilated that there is little residue. If any remedy is needed it is only in the way of regular habits and diet. It is surprising how early the habit of regular evacuation can be established.

Mechanical diarrhea is usually marked by frequent bowel movements only. Little or no fever is present, and, if of short duration, there is not much dehydration. There is, as a rule, a history of frequent enemas, cathartics, or suppositories. Undigested foods also cause this condition. There is always mucus in the stools and frequently little else. The treatment called for is sedative, a fat-free, milk mixture, low in sugar until the regular formula can be given.

Putrefactive diarrhea is the form least often seen, as it is rare, indeed, to find over-feeding with proteid. The end-product of proteid decomposition is putrefactive, and there are intensely foul stools. The mother tells you the stools smell rotten. It occurs more often in older babies than in the infant. The stools are not so numerous as in other forms and are quite well formed. The temperature is not high, rarely going above 102°. The reaction of the stool is alkaline. These patients respond well to treatment. Theoretically a high carbohydrate diet is indicated, but in practice it is not well borne by the great majority of babies. We have had the best results with acidified whole milk, beginning with a one-third dilution, then one-half, and so on until the full strength mixture can be used.

Fermentative diarrhea is the one seen most frequently because sugar is the chief source of intestinal indigestion. Coupling this with the prevalence of the use of proprietary mixtures in the feeding of infants we are not surprised at the results. When we consider that simple milk, water, and sugar mixtures are the best tolerated foods we have at our disposal in artificial feeding, it is hard to reconcile the continued use of proprietary preparations by any members of our profession. If a law were passed forbidding the manufacture of all baby fillers, for we will not call them foods, it would be nothing short of a panacea. Their high sugar content is productive of fermentation. Here we have frequent, brown, foamy, sour-smelling stools, acid in reaction. Loss of weight is rapid in these cases, and the picture is soon one of great dehydration. The history of high carbohydrate feeding makes us realize that the infants' reserve is low. Their previous fat, plump appearance simply meant that they were waterlogged. The mother will tell you how fat the baby was a few days previously and frequently brings a photo to verify her statement. The temperature is not high. Here, as elsewhere, the giving of calomel and bowel irrigations are only mentioned to be condemned. These babies must be fed. First on one-third strength protein milk until the weight curve is stationary; then increase to one-half strength and gradually to whole strength. Then the transition from this to a sugar-free milk mixture must be just as gradual until the food tolerance can be established. No drugs are needed. Of course, it is understood that all milk given to infants must be boiled. To combat the dehydration it is necessary to replace the fluid loss by the giving of normal saline. Where the dehydration is extreme the infant is spastic, and magnesium sulphate in a vein is of service. Blood transfusion may be necessary.

Infectious diarrhea may be caused by a number of organisms. Among those isolated are the Flexner, Shiga, colon, and the bacillus of Hess. Here we have a sudden onset in a well child. The temperature rapidly climbs to 104° and 106°, with vomiting from the start, stools numerous, and rapid loss of weight. The stools are largely composed of pus, mucus, and blood. This we will distinguish from intussusception where we have blood only. Pain is present and tenesmus. These cases rapidly develop into intoxication with marked acidosis, rapid deep respirations, acetone breath, and drowsiness. There is marked leukocytosis. Purging these children would increase the irritation already present. These cases call for sedative treatment. Theoretically, we would give a high carbohydrate diet since the dysentery bacillus does not thrive in an acid stool. Here again, in practice, we have found that it is best to ignore the bacteriology of the bowel. Carbohydrates are not well tolerated by a well infant and certainly less so by a sick one. Here, as elsewhere, we want to drive home the fact that the child's food tolerance is 95 per cent of the battle in every case. That being true, it is going to put up the best fight on the food that it can best handle and the most readily convert into energy. Such a food is Eiweiss milk, and its use in these cases brings gratifying results.

In the general treatment of all food disturbances in children, we must remember that we are treating the child and not the diarrhea. Drugs may do harm. Dr. Abt has produced blood in the stools of normal infants with small doses of calomel. That should give us a clew as to what it does to an inflamed intestine. Further than that, there is no indication for its use. Oversecretion is present and does not need to be stimulated. In an advanced case of athrepsia, one dose of castor oil may kill the baby. Commercial firms have promoted a propaganda for the giving of bacillus acidophilous and other bacterial solutions in a blanket treatment for all diarrheas. It is manifestly impossible to give these in large enough dose by mouth or to introduce them high enough into the colon to change the intestinal flora to any degree. Antiseptics would be indicated in infectious diarrheas only at best. Never in the other forms. Marriot has used argyrol per mouth, but the results do not warrant its use, it seems to me. Certainly it is a fussy, uncleanly method. In any case, our first duty is to search out and remove the cause. If it is mechanical, due to enemas, cathartics, suppositories, or irritating food, stop them. If there is a parenteral infection, its correction may be all that is necessary. If it is a primary food injury, the feeding history will reveal it, and a diet adjustment will be the larger part of our treatment. Even in true infectious diarrheas, instead of trying to fuss with the bacteriology of the colon, we will give a food well tolerated, and the infant will build its own defense.

The conditions most to be feared are toxemia and dehydration. These require active treatment. We must not wait until the body tissues are robbed of fluid before beginning to restore them. As pointed out by Mitchell, the excessive water loss in diarrhea causes blood concentration. Because of blood concentration there is failure of urinary secretion, with resulting uremia. When renal function ceases there is an acidosis with deep, sighing respirations, air-hunger, and toxemia. Promptness in restoring the body fluids is the first consideration. Fluids by mouth and colon are of little avail. Hypodermoclysis is of some value, but is painful. Only small amounts can be given, and they cannot be repeated often. Intravenous injection of 10 per cent glucose and 2 to 3 per cent sodium bicarbonate is also of use, but it is not a simple operation and is attended with some danger. We have left, then, the intraperitoneal route, which offers us the safest, quickest, and easiest method of combating toxemia and loss of fluid. Large amounts, from 150 to 400 c.c., may be given. It is rapidly absorbed, so that it may be repeated three times in twenty-four hours if necessary. Injury to the gut is extremely improbable. While we have used a variety of solutions, the normal physiological salt solution does all that any of the others do and is always available. The solution should be in a glass container held two feet above the abdomen, and the temperature of the fluid at 100°. An 18-gauge needle is inserted one-third of the way below the umbilicus to the pubes, directing the point upward. A prick with a lance through the skin facilitates the easy passage of the needle, so that it does not go through with a rush when the skin resistance gives way.

Carefully supervised feeding in all these cases, either with acidified milk or protein milk, is of prime importance. Begin with thin mixtures, but do not forget to push them up as fast as the tolerance will permit.

BLOOD PRESSURE IN SURGICAL CASES*

By J. F. Corbett, M.D.

MINNEAPOLIS

Blood-pressure readings are of considerable value in surgical diagnosis. As an isolated entity one cannot place very much reliance on these findings. The reason for this is founded on the statement that blood-pressure readings are but one factor in a very complicated ensemble, that is, blood pressure is influenced by vasoconstriction and by blood volume. Blood volume is compensated for in many conditions by drainage of fluids from the body tissues; therefore, in any case where hemorrhage is suspected, but not actually visible, we must take into consideration, not only the blood pressure, but the vasoconstriction and the degree to which the loss of blood volume has been compensated by the advent of body or tissue fluids into the circulation. Vasoconstriction can usually be determined by the color of the skin, by the appearance of superficial vessels, and by the temperature of the skin if one makes correction for loss of temperature due to sweating.

The concentration of the blood is usually best measured by hemoglobin determination. Immediately following hemorrhage of an acute character there usually is little, if any, change in hemoglobin for a period of about seventy hours. At that time the dilution of blood with fluids either from tissues or other sources is marked. The blood-pressure findings are of value when the other factors are known.

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*Presented before the Western Surgical Association, December 9, 1921.

Pallor with normal hemoglobin indicates small blood volume, but pallor with low hemoglobin indicates a relatively large blood volume with low hemoglobin. The pallor is not identical, but, while it is possible to recognize it, it is difficult to describe it. We might say vasoconstriction and dilution of blood are nature's compensation for hemorrhage. These compensating agents are capable of acting for a time, but whenever the intense vasoconstrictions fail, if not compensated for by dilution, then a sudden fall of blood pressure may ensue. This is the explanation of the sudden collapse and death of patients who apparently have withstood the effects of severe hemorrhage for some time. I have seen a patient whose blood pressure was good, whose condition did not seem alarming, and from whom no bleeding had occurred for some time, suddenly collapse as though a new hemorrhage had occurred. As a matter of fact, no new bleeding had occurred, but vasoconstriction had failed. Ether and operative procedure are very apt to provoke just such a collapse and should remind us that operative interference, usually imperative, is not without its danger.

How far vasoconstriction may compensate blood pressure is illustrated in the following case:

Miss J. R. had suffered from repeated and severe hemorrhages from the uterus on account of a submucous pedunculated fibroid. On April 9, 1922, she lost what was estimated to be a quart of blood. I saw her on that day. Her hemoglobin was 45, her blood-pressure was 128-70, and she presented the picture of extreme vasoconstriction. Her blood volume was very small, for 350 c.c. of blood transfused from her sister with a hemoglobin of 90 raised the hemoglobin content of the recipient to 60 per cent. In spite of the increased volume, the blood pressure after transfusion was 120-80. However, the capillaries of the face and ears became filled with blood, and the patient actually looked flushed. On April 11, 1922, the patient's blood pressure was 100-55, and her hemoglobin 44. On this date her color was better than when she had the same hemoglobin with the vasoconstriction present before transfusion. She felt somewhat weak, but infinitely better than before. Ultimately she went on to marked improvement. The fibroid was removed at the time of the transfusion, and no more bleeding occurred. The operative effect of the snipping of the fibroid was negligible. I feel certain had the case been allowed to proceed she would, without additional hemorrhage, have collapsed suddenly when the vasoconstriction failed.

Another example is in the case of E. T.:

On May 19, 1921, she was struck by an automobile and suffered a fracture of the skull and a rupture of the spleen with severe hemorrhage. Her blood pressure was 75-40 and pulse 110 on admission. She was in intense vasoconstriction and looked like shock. On May 20, 1921, her blood pressure was 102-70, pulse 106, and hemoglobin 75 per cent. Her increased blood pressure was due to vasoconstriction at the time the spleen was removed, bleeding vein ligated, and hemorrhage stopped. On May 21 her blood pressure was 130-90 and pulse 100, twenty hours after operation, and her hemoglobin was 75 per cent. On May 24 the hemoglobin was 65 per cent and pulse 84. It was not until then that compensation from body fluids was manifest. On June 28 her blood pressure was 125-90, hemoglobin 80 per cent, and pulse 88. In this case we actually operated at a time when vasoconstriction had almost controlled bleeding but before failure of the agent.

Perforated gastric ulcer is usually at some time characterized by low blood pressure. This is usually early, and later spontaneously is compensated in some manner. As an example I cite the case of J. F., who suffered a perforated ulcer on September 19, 1921, at 1:10 A.M. His blood pressure soon afterwards was 75-40 and pulse 80. He was operated on (gastro-enterostomy and closure of perforation) on Sept. 19, 1921, before he had fully reacted. His blood pressure on September 20, 1921, was 130-90 and pulse 84. This patient would, if not operated on, probably have shown a spontaneous rise of blood pressure, as was the case in E. R. G. On my first visit the blood pressure was 130, although immediately after his attack it was so low that I have not felt it could accurately be recorded. I do not believe blood pressure gives any index to prognosis unless taken at all stages of a perforated ulcer, as spontaneous rises have occurred in fatal cases.

A low blood pressure in ruptured appendix, I believe, prognosticates an unfavorable outcome. Some of these patients with fairly good pressures at the time of operation have died. Recovery from a low blood pressure due to sepsis has not come under my observation.

Ruptured ectopic pregnancies usually come to us after repeated hemorrhage. I recall one case with a blood pressure of 130-60 and a hemoglobin of 40 that was suffering from air hunger and seemed at the point of death. Clamping vessels and transfusion raised the hemoglobin only eight points, so that the blood volume was fairly good. In spite of threatened respiratory collapse the patient recovered.

In a very acute hemorrhage from the femoral artery, the blood pressure was almost direct indication of the patient's condition. This patient's blood pressure was almost impossible to get and for two hours after application of the tourniquet remained stationary. The hemoglobin was 95, and the blood pressure immediately returned after transfusion of 800 c.c. of blood. In this case a suture of the artery was done successfully, and the patient left the hospital in twelve days in good health.

In brain injuries the blood-pressure findings alone are not conclusive. In five cases of bleeding from the middle meningeal careful blood-pressure records were kept. In two of them the pulse pressure,—that is, the difference between the systolic and the diastolic pressure,—was very great—in fact, more than twice the pulse rate. In the other three this did not hold good. For example, Patient B. had a blood pressure of 160-112 and a pulse of 58. Operation showed an enormous hematoma about the ruptured middle meningeal. The pressure was extreme, yet some other factor, possibly shock, destroyed the typical ratio we expect to find.

A high pulse pressure unassociated with slow pulse has occurred in some of our cases of brain contusion. Patient S. had a blood pressure ranging from 132-45 to 130-30, but the pulse was 85-100. This man showed some mental confusion, but there was no choking of the discs beyond a slight papillo-edema. He made a perfect recovery in a few days. Most of the severe lacerations of the brain show a rapid pulse and low blood pressure, attributable, I believe, to coincident shock.

In conclusion, I wish to state that consecutive blood-pressure determinations taken throughout the course of any surgical case are of value both as to prognosis and as to time of operative interference, provided due weight be given to other compensatory factors.

THE CAUSE OF SEVERE BLEEDING FOLLOWING TONSILLECTOMY —A CASE REPORT

By A. D. Hawkins, M.D.
MONTICELLO, MINNESOTA

I have just had a case which was very trying to me, and which, I think, is interesting; and, therefore, I desire to report it in the columns of The Journal-Lancet.

Miss V. B., aged 23, came for the removal of submerged necrotic tonsils. The operation was done under local anesthesia. On beginning to use the anesthetic, I noticed that a stream of blood issued from each needle puncture.

During the operation, which lasted about two minutes, the patient lost about three ounces of blood, although adrenalin was used. Following the operation the patient began to bleed from the fossæ, and the application of pressure did not seem to help any; the bleeding was a general oozing with no spurting present.

Two tonsil clamps were applied for an hour. On removal the oozing began and was considerable, no clots would form. She had lost so much blood that I decided to sew the pillars together. This stopped a good deal of the bleeding, but it continued to bleed around the stitches; and whenever, in my suturing manipulations, I pricked the side of her cheek or the roof of her mouth, there a trickle of blood started and would not stop. She lost so much blood she was almost in shock. I started proctoclysis and gave her, subcutaneously, 5 c.c. of P., D. & Co.'s Hemotlastin. Within five minutes after the use of the serum the oozing stopped, and the patient began to pick up. The next morning I noticed a swelling on the right parotid gland, and an hour later the left parotid gland became involved, with fever, etc. In other words, the patient had mumps. On questioning I found that she and her brother had been exposed the week before, and her brother had developed mumps on the morning of her operation.

Now, the question, Was she a hemophiliac or did the presence of an acute parotitis infection in her system cause the bleeding?

I have never heard of this combination before, and I shall be interested to know if other physicians have found a similar state of non-coagulability of the blood just before the manifestations of the mumps. I have never had much faith in hemostatic serums up to this time, but in this case there is no question but that the serum was worth its weight in gold.

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LEADERS OF MEN

We are living in an age that is full of great, momentous events; and those who have followed the new inventions and the new ideas for the past fifty years have seen practically all the marvelous things in the world up to the present time; but the inventive genius and the man of affairs in the next fifty years may go far beyond our wildest expectations.

As a nation, as a people, we are apt to be very critical, and we are notorious as unbelievers. We look upon inventive suggestions as impractical. We look upon men with progressive minds sometimes with awe and admiration, but at other times we are doubting Thomases. It is said by Maurice Francis Egan, in reviewing a recent work by Alexander Macintosh, that every statesman is misunderstood, traduced, censured, and calumniated. One man who is quite uppermost in the minds of the people at the present time is Lloyd George; but, Egan says, he has, strangely enough, almost escaped calumny. No statesman, however, living or dead, has ever been the target for more abuse or for more admiration. Macintosh further says that what Carlyle wrote of Mirabeau may be written of Mr. Lloyd George: "This is no man of system, then. He is only the man of instincts and insights, the man, nevertheless, who will glare fiercely on any object and see through it and conquer it, for he has intellect, he has will force beyond other men, not with logic's spectacles, but with an eye."

If this be true of Lloyd George, then we may be sure he will live in history. But what about our own country? Where are our great men, who are they, what are they doing, and what are they going to accomplish? It has seemed almost incredible that the men in political situations, high in government circles, are much lesser lights than those of the past generation, and it looks almost as if we were slipping somewhere. Doubtless the whole mass would slip if it were not for the men of affairs outside of politics, the real business men of the country, who are carefully regulating, systematizing, and guarding the interests of the people as a whole. This, of course, includes themselves; but who should criticize or condemn or censure a man who is doing what he thinks is right? True, there may be some who accomplish tremendous results by unfair and unscrupulous methods, but these men are comparatively few. The real man of to-day, the man who is holding the nation in line, is the man of business.

Most of our so-called great men are vacillating. They are in the limelight for the present, but they are in constant danger of being thrown into utter darkness because they have not the backbone to do the things they ought to do. Why should this land,—as free, wholesome, and open as it is,—be subjected to the wishes and the insolence of the few? Not more, and probably less, than 25 per cent of the people are trying to dictate to the other 75 per cent of the United States a policy which is destructive, murderous, and offensive; and yet our Government permits this to go on. We are apt to say, critically, that this is done from fear,—fear of criticism, fear of political effects, fear of the few.

The Americans who might be great to-day have been berated to such a degree and held down by so-called public opinion that they have become what we now stamp as purely complacent people. They really are indifferent, their interests are rather selfish, and they are unwilling to enter public life for public protection because of the unrest or the inertia of the masses. Perhaps the politicians who are at the head of the Government will pull us out of this ragged hole. It may be because we do not know what they have to contend with that we feel and speak as we do. They necessarily must keep many things to themselves and suffer unjust criticisms. There may be many interesting things that are kept from the public; and, if the public were familiar with the underlying current of events, they might not be so critical. But at present it seems as if everyone who has to do with public business and the welfare of the community at large is rather negligent in his duties and is hampered by something we know not of. Recently a bill was put through Congress, called the funding bill, which provided for the debts owed to this country and further providing that bonds bearing not less than 4 per cent shall be issued to take care of the indebtedness. Incidentally, the bill tied the hands of the President, so that he has almost nothing to say and can do nothing in the matter of settling the indebtedness of other nations to the United States. Why did this bill get through? Was it passed by the conscientious American-loving part of Congress, or was it put through by the un-American or the sly political influence? These things are very important to every American, and yet we sit by and watch this outlandish process, garbed in all sorts of masks and costumes which hide the real identity of the individual. The time has come when every man who is a voter should be compelled to vote and help to settle our issues, one way or another. Otherwise our so-called democratic government will perish from inanition. It will take a long time for us to get back to a normal method of thinking, where we can look ahead without fear.

STARVATION, VOLUNTARY OR INVOLUNTARY

There are many interesting sides to the question of fasting. The most popular, apparently, is the account of some individual who has determined to abstain from nourishment for a certain definite period of time. Old man Tanner started this idea, and he went on with his periodical fasting for a good many years until finally death relieved him of this experimental research work. Since then he has been followed by devotees of both sexes. Recently some woman fasted for so many days that she died before the account of it could be gotten into the evening papers,—somewhat like fifty-seven days. But she evidently had a definite fanatical or delusional idea about her fasting. It seemed to be for no special purpose except for her own entertainment, or perhaps she was demented and resisted food because of her delusions and fear of poison.

Other cases have been reported, in which voluntary fasting has lasted for from three to four weeks with great benefit to the individual. These people belonged to a cult who thought that a certain amount of fasting was essential for their welfare, and perhaps it was. They seemed to come through, somehow. But, usually, the feat is not enjoyable. There is a certain amount of reduction of energy, a certain disturbance of functions which, in spite of the boastfulness of the fasters, leaves a marked effect upon them.

It would do a lot of people in this country good if they fasted in a really scientific manner. It would cut off their superfluous adipose tissue, give their digestive organs a rest, and, at the same time, stimulate their eliminative organs. But this sort of business is not very popular. There are comparatively few who have the courage to go on with the experiment. Most people, as a rule, like food, and they refrain from taking it only because they are in a position where they are obliged to. The average man or woman who starts in to fast is usually tempted after a few days, and returns to either a moderate or an excessive dietary.

The one disease in which fasting is sometimes of great benefit is diabetes mellitus. In this disease fasting produces a weakened function of food elimination, and in an uncomplicated case the beginning of fasting in an abrupt manner is a reasonably safe procedure, provided the patient can be under adequate observation. It has been said, too, that persons who are extremely emaciated and weak and who suffer from acidosis, and who, from all appearances, look more dangerous than experimental cases, are often the ones who most urgently need the starvation method. Two or three days of complete fasting in diabetes of this form is usually highly beneficial, for it brings about a condition of comfort to the patient, and the return to a diet that is suitable for the individual may be started and continued without detriment.

It is safe to say that many people, with or without disease, may fast with safety for from two to four weeks, provided the water intake is sufficient. That means that they must take from one to two quarts of water a day, plain or charged, according to the likes or dislikes of the patient. A certain number of mental patients who undergo fasting treatment suffer comparatively little inconvenience except those who are in fear of the administration of poisons. These special patients undoubtedly suffer mentally because they are constantly on the lookout for some imaginary disaster. But the mental patients who have no fear of such things can fast with safety provided they are in bed and under reasonable observation. It not only gives them a chance to clear up their physical functions, but, incidentally, it may clear up their mental obliquities.

It is usual to begin a fasting process with a good laxative, or even a purgative, in order to clear out the gastro-intestinal tract; but who is to decide when the tract is clear? Patients have been observed after ten days or two weeks of fasting to have normal bowel movements, showing that the intestinal tract has not been cleaned out. The amount of substance that may be retained in the intestinal tract is almost incredible. Cases are frequently reported where a daily bowel movement has been recorded on the chart, and after patient watching foodstuffs may be found that were eaten weeks or months before. Consequently, when one gives an heroic dose of castor oil or a calomel and saline purge, and there is a copious movement of the bowels, it does not necessarily mean that the intestinal tract is clear; but it does mean that it has been relieved of a large portion of its mass. And it is quite fair to assume that the patient is relieved of any danger of auto-intoxication or gastro-intestinal infection. People who fast under proper conditions do not lose very greatly in weight, provided they drink a sufficient amount of water. This is partly due to the normal water retention or to a possible edema, which keeps up the general appearance and, incidentally, the weight.

It is currently reported that after a day or two of starvation the sense of hunger is not present. It is practically the same with the man who smokes or drinks to excess. He finds that, after one or two days of abstinence from liquor or tobacco, his taste for them has departed. So it is with the faster. His hunger sense, which is mainly in his nervous system, has practically disappeared, and he finds himself very comfortable; and, if the fasting is not carried on too far, he gains materially in strength because of the clearing-out process he has undergone. In an incurable disease, one which renders the patient helpless, if a person of advanced years, the solicitation of the family sometimes makes it impossible to carry on the fasting process. But, if they thoroughly understand that the individual is not to recover, cannot in all human possibility recover, they become willing co-operators in the fasting,—that is, they agree it is unnecessary to attempt to prolong life by forced and unnecessary feeding, for the reason that most people can go on fasting for three or four weeks and then can be fed gradually and with increasing amounts of food with perfect safety. So no harm comes from it.

The men who commit crimes, who are crooks and fraudulent persons, often attempt to fast when they are sent to jail or prison, and they create a tremendous amount of sympathy on the part of soft-hearted individuals who never miss a meal if they can help it, when, as a matter of fact, such persons are helping themselves and the community at large by their hunger-strikes. They not only come back well, after a sufficient length of time, but they come out of their jail in much better physical condition than when they went in. Yet medical men will sometimes forcibly feed these cranks or crooks after they have fasted a few days only.

The only danger about fasting is the occasional and perhaps unrecognized diabetic who unexpectedly develops a danger which has not been anticipated. But these dangers can be avoided by following a well-ordered plan of fasting and by keeping closely in touch with the functions of the human body. It is probably true that most people eat too much, but occasionally one finds a really normal individual who fasts for a meal or a day. He is really doing himself good, giving his digestive organs an opportunity to recover from their indisposition and resting his nervous system under a rational method of diet.

DR. FREDERICK H. KNIGHTS

Dr. Frederick H. Knights, who recently died at Pequot, Minnesota, was born in 1861 and graduated from the Northwestern University Medical School of Chicago in 1890. He came to Minneapolis to begin his work and was here until a few years ago, in general practice, when he was obliged to leave for the northern pine-woods on account of the illness of a son who died of tuberculosis. He himself had contracted the disease and remained in Pequot until his death on August 18, 1922.

Dr. Knights was a general favorite, a man of high standing, absolutely square and fair in everything he undertook, and a man who was widely read. He was secretary of the Hennepin County Medical Society for several years, and later became president. When it became necessary for him to go north, he continued in active practice until he had an attack of cerebral hemorrhage, which eventually caused his death.

He left behind him a good name,—that of a man who was justly popular with his medical associates and one who was conscientious in the carrying out of his duties.

DR. JOHN J. EKLUND

The tragic death of Dr. J. J. Eklund, of Duluth, by an assassin's bullet, created a tremendous feeling and a sensation which will be hard to forget. It recalls the similar death of a former Minnesota man in Muskegon, Michigan, a man who was shot in the same way, without warning and without any cause whatever. Under such circumstances the most charitable thing one can put up in the way of an excuse is that the man who did the shooting was insane. Certainly, no man would have shot a man of Dr. Eklund's type from pure revenge or because of the fact that he was in some way instrumental in drafting or aiding the entrance of the man into the U. S. Army. Perhaps many a man has carried resentment toward members of the draft boards, medical advisory boards, or the final board appointed to pass upon the doubtful men who were either drafted or who enlisted.

Dr. Eklund was born in 1861 and graduated in 1885 from the Minnesota Hospital College, which had its building on the East Side, on the site where the old Exposition Building now stands, and where some of the older members of the medical profession in Minneapolis and St. Paul began some of their first work and laid the foundation for the first medical school in Minnesota, which afterward became the Medical School of the University of Minnesota. Those of us who were there will remember Eklund because he looked very much the same as he has looked in the last few years,—strong, sturdy, fearless, and energetic.

He was a man of strong personality, and he was a man, too, who believed in doing other things in addition to practicing medicine. He was interested in the welfare of the people, and, further than that, and perhaps higher than that, he believed in the politics of the country, and he did much under Republican campaigns to promote Republican welfare. So he did not hesitate nor was he afraid to enter politics as a citizen. And he will doubtless be remembered among the politicians for his work in the various campaigns. He made a place for himself in Duluth that will always be remembered. Because of his generosity, his open-handedness, and his interest in medical matters he became a leading member in the St. Louis County Medical Society. So great was his interest in medicine that he induced his son to follow in his footsteps, and it is to be expected that the son will prove to be as good a man as his father.

The writer knows some of Dr. Eklund's patients, and knows that they will suffer great grief at his unexpected departure and will miss his kindly and sympathetic advice and attention. He was always ready to do his duty, and was frequently called upon to give his advice and counsel, not only in medical, but in civic, affairs. Such men are men whose absence is not only a matter of regret to their families and friends, but a distinct loss to the community in which they lived.

BOOK NOTICES

A Primer for Diabetic Patients. A Brief Outline of the Principles of Diabetic Treatment, Sample Menus, Recipes and Food Tables. By Russell M. Wilder, Mary A. Foley, and Daisy Ellithorpe. Cloth, $1.50 net. Pp. 76, with 2 illustrations. Philadelphia and London: W. B. Saunders Company.

This small book is full of useful information for diabetic patients. It was prepared for and is studied by patients at the Mayo Clinic as their tolerance is being determined. They state that only two cases out of over one hundred treated there might have been benefited more if they had been left in ignorance of their condition.

The book is divided into the following sections:

1. The purpose of the diet.
2. Measures and weights and their importance. The Metric System.
3. Food as energy in calories.
4. The urine. Tests for sugar and diacetic acid.
5. Foods and their composition.
6. The Dietary Management.
   - Group A. Tolerance below 40 grams carbohydrate.
   - Group B. Tolerance between 40 and 60 grams carbohydrate.
   - Group C. Tolerance between 60 and 100 grams carbohydrate.
   - Group D. Tolerance above 100 grams carbohydrate.
7. Special notes of importance.
8. Diet menus and recipes.
9. Tables of food values.
10. Index.

—Charles N. Brooks, M.D.

The Medical Clinics of North America. Vol. V, No. 4, January 1922. Paper, $12.20 net; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

This number from New York City contributors is very interesting. Dr. Warfield T. Longcope, in considering epidemic jaundice in the United States, concludes that there is no evidence that the present epidemic in the United States is due to the spirocheta icterohemorrhagiæ. It seems probable that other organisms may produce a form of jaundice which occurs in epidemics.

Drs. A. R. Lamb and William C. von Glahn discuss three interesting cases of staphylococcus aureus endocarditis and urge giving up such partially descriptive terms as malignant, septic, infectious, vegetative, ulcerative, in favor of the name of the offending organism. They describe, among characteristic embolic phenomena, skin lesions in the form of small yellowish abscesses surrounded by halos, and mention that the emboli spare no part of the body.

Dr. Harlow Brooks, in an excellent discussion of the treatment of pneumonia, stresses the study of each individual and symptomatic treatment. He is convinced that all sera, except in Type I, are harmful, and believes in early digitalization. Oxygen is considered to be of benefit only in cases with severe cyanosis.

Dr. Ernst P. Boas, in a general survey of the part of the capillaries in circulatory disorders, states that they play an important part, the significance of which offers fruitful field for research.

Dr. A. S. Blumgarten reports cases with diagnosis of pituitary headaches treated with pituitary extract, and of hyperthyroidism treated with adrenal cortex.

Dr. Albert A. Epstein gives his conception of chronic nephroses and their treatment with high protein diet, which, if insufficient, and with thyroid therapy in addition, he thinks will accomplish results.

Dr. J. L. Kantor discusses five common clinical types of appendicitis.

Dr. Herman C. Mosenthol in considering hypertension recognizes that there is no specific treatment, that relief should be had from nervous strain, that diet has no direct effect, but has indirectly through reduction of weight, and that a general survey of the patient will indicate what measures should be taken in regard to the teeth, gastro-intestinal canal, and genito-urinary tract.

Other clinical reports are by Drs. Jesse G. M. Bullowa, Burrell B. Crohn, and Bret Ratner.

—C. A. McKinlay, M.D.

Papers from the Mayo Foundation for Medical Education and Research and the Graduate School of Medicine of the University of Minnesota, covering the period of 1915-1920. Octavo volume of 695 pages with 203 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $10.00 net.

This book is unique in that it contains, in brief, material for at least a dozen volumes of its size. It marks the beginning of an epoch in graduate medical education, affording the evidence of the great amount of the extremely varied medical research carried on in the graduate school of the University of Minnesota and the Mayo Foundation. The abstracts listed in the volume demonstrate the excellent character and high quality of the graduate work, especially the research being done in these two institutions. Special mention of any one or several of these titles is withheld in fairness to the others included in the work.

The value of the volume is mainly to those actively interested in medical research, as it affords the latest developments in almost all branches of medicine. It also is of great value in the way of suggestion of possible topics for further work in any of these branches of research. It is a permanent commendation of the "Minnesota Fellowship Plan."

—Arthur E. Benjamin, M.D.

NEWS ITEMS

Dr. F. V. Lyman has moved from Browerville, Minn., to Noonan, N. D.

Dr. G. H. Walker, of Fairfax, has sold his practice to Dr. W. W. Brown.

Dr. O. J. Baldwin, who has practiced at Chisholm for the past two years, has moved to Rockford, Ill.

The Duluth Department of Health pays its nurses $140 a month and furnishes them automobiles.

It is reported that Dr. N. L. Klove will return to Chokio to practice after being absent a year in Kensington.

Dr. O. O. Larson, of Detroit, has gone to Chicago for a postgraduate study in eye, ear, nose, and throat work.

Dr. John Lyng, of Minneapolis, has returned from a seven weeks' visit to the hospitals of the East, mainly in New England.

The Eitel Hospital of Minneapolis has now opened its doors to outside surgeons, after having been a closed hospital since it was built.

Dr. A. W. Guest has been reappointed superintendent, for a term of two years, of the North Dakota State Hospital for Insane at Jamestown.

Dr. George A. Lierle has been elected president of a syndicate of business men at Canova, S. D., who are planning to build a hospital at that place.

The hospital at Grygla will be reopened about Oct. 1. The directors will provide the necessary funds, in addition to making repairs on the building.

Dr. J. F. Lynn, of Waseca, who is a candidate for Congress, has issued a 9-plank platform which seems to be a good thing on which to enter the omnibus.

"Who's Who Among Minnesota Women" is the name of a book to be published by Mrs. W. T.

Coe, of Minneapolis, and Mary Dillon Foster, of St. Paul, next month.

Dr. H. B. Loughery, who recently finished his interneship in the St. Paul City and County Hospital, is now associated as a partner with Dr. E. W. Jones, Mitchell, S. D.

Dr. J. E. Crewe, of Rochester, who conducts a sanatorium for chronic diseases of metabolism, spoke last week before the Minneapolis Kiwanis Club on "Factors in Longevity."

Dr. J. S. Abbott, who for several years has been at the head of the medical department's inspection staff of the city of St. Paul has resigned and Dr. A. E. Nichols has been appointed to succeed him.

The National Medical Service Association is a new Minneapolis health organization with capital stock of $100,000 which proposes to give physicians' services for a stipulated annual fee.

Dr. J. R. Sturre, of Watkins is erecting an office building which will accommodate a dentist and himself. In addition to a joint reception room and private office, there will be a laboratory room and some bed rooms for emergency work.

The Minnesota State Board of Control of Minnesota will ask the next legislature for a larger appropriation to establish a colony for epileptics to relieve the School for the Feeble Minded, located at Faribault and largely overcrowded.

Dr. W. J. Kucera, formerly of Hopkins, has located in Minneapolis, taking the office of the late Dr. Hugh N. McDonald, at 329 East Hennepin Ave. Dr. Kucera has recently finished a course in eye, ear, nose and throat work and has also been practicing for some months with Dr. J F. Schefcik, of Minneapolis.

Dr. Frederick A. Knights, of Pequot, died on August 18 at the age of 61. Dr. Knights was a graduate of Northwestern and practiced in Minneapolis for eleven years. He was president of the Hennepin County Medical Society and had been secretary of the Society several years. He went to Pequot over ten years ago on account of failing health. An editorial appreciation of Dr. Knights appears on another page.

Dr. Aaron F. Schmitt, formerly of Mankato, but now located in Minneapolis, has resigned as secretary-general of the Southern Minnesota Medical Association. In his letter of resignation he gives two reasons for his resignation. One is that, having moved to Minneapolis, he "finds it more arduous to put two programs on every year." The other is, "I feel that the Minnesota State Medical Association should receive the hearty support of every physician practicing in the state."

Dr. John J. Eklund, of Duluth, died on August 19 at the age of 61, death resulting from three gunshot wounds in the head inflicted by a maniac, who at once killed himself. Dr. Eklund graduated from the Medical School of the University of Minnesota with the class of '85, and was chief of staff of St. Luke's Hospital, Duluth, at the time of his death. Dr. Eklund was one of the oldest practicing surgeons in Duluth, and he was prominent as a business man in the city, being president of one bank and a director in another. Further notice of Dr. Eklund will be found in our editorial columns.

ANNUAL MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

The meeting will be held in Minneapolis on October 13 and 14. Headquarters will be at the Millard Hall, University of Minnesota. Information booths will be placed at various hotels. The House of Delegates and the Council will meet on October 12 in Millard Hall. The Section on Surgery will meet in the Anatomy Amphitheater and the Section on Medicine will meet in the Animal Biology Building lecture room.

The combined session will occur Friday afternoon, October 13, and will use the Chemistry auditorium.

Exhibits.—Exhibits will be in charge of a committee of which Dr. S. R. Maxeiner is chairman. This will consist of the following divisions:

1. Commercial exhibits in the corridors of Millard Hall and Institute of Anatomy.
2. Scientific exhibits consisting of x-ray demonstrations, pathological material, etc.
3. Demonstrations by the Departments of Pathology, Bacteriology, Pharmacology, Physiology, Experimental Surgery.

Clinics.—Clinics will be held at the University Hospital and elsewhere on October 12.

Entertainment.—

1. A banquet for both men and women will take place at one of the hotels in the loop district on Friday evening. Some lay speaker will give an address, and an entertainment will be provided. Dr. G. Elmer Strout is chairman of this committee.
2. The women will be entertained by the Wo-

men's Auxiliary of the Hennepin County Medical Association.

3. Golf tournaments will be provided, notice of which will be posted later. It is suggested that all physicians who wish to play golf on October 12 should send their names as soon as possible to Dr. H. N. Newhart, who is chairman of the Entertainment Committee.

The Physicians' Exchange will probably furnish well organized telephone and messenger service. Information booths will be established at the principal downtown hotels. Lunches will be served at the Minnesota Union on the days of October 12, 13, and 14 for a nominal charge.

Visiting physicians should make their hotel reservations as soon as possible or this will be done for them if they write to Dr E. L. Gardner, Chairman, 730 La Salle Building, or to Dr. G. S. Reynolds, Secretary, 816 La Salle Building, for the Committee on Arrangements.

UNOPPOSED PRACTICE FOR SALE

In a town of 500 in Southern Minnesota. Collections good; roads good; will sell practice and office equipment for the price of the equipment. Good reason for selling. Address 271, care of this office.

POSITION IN DOCTOR'S OR DENTIST'S OFFICE WANTED

By an experienced young woman of good address; a fair stenographer; and a splendid collector. Moderate wages wanted; best of services rendered. Address 273, care of this office.

PRACTICE IN NORTH DAKOTA FOR SALE

In a city of 1,000, general and surgical practice. Average receipts for the past four years, $18,000. A $12,000 home and $3,000 equipment included. Takes $6,000 cash to handle. $6,000 on home and balance on terms, $3,000. Going to California. Address 272, care this office.

UNOPPOSED PRACTICE FOR SALE

In a good town of 450 in North Dakota, with fine high school and churches. Nearest physicians 16, 17, and 26 miles. Practice runs from $500 to $600 a month. Have practiced here fourteen years. Crops good. Will give full introduction. Address 274, care of this office.

HOSPITAL DIETITIAN WANTS POSITION

An experienced dietitian, capable of taking charge of the dietetic work in any hospital, desires such work in the Twin Cities. Can give the best of references. Address 278, care of this office.

POSITION WANTED BY TECHNICIAN

A recent graduate from the Laboratory of the Minneapolis General (City) Hospital desires a position. Can do all routine laboratory work and general clerical work. Will go outside of the city to accept work, and will do so at a moderate salary. Best of references. Address 270, care of this office.

DENTIST'S OFFICE

By a girl (aged 17) who is a high school graduate. Will accept a moderate salary. Address 276, care of this office.

PHYSICIAN WANTED

At Hitterdal, Minn., a thriving town of 300 population in the potato and mixed farming district of West Central Minnesota. Scandinavian population. Have a drug-store. For full information write Adolph Herseth, Pres. Commercial Club.

LOCATION WANTED

A young doctor, graduate of a Class A school with one year's practice in a hospital and one year with a general surgeon, wants a location in a town of 300 to 1,000 population, preferably in North Dakota. Will buy office equipment. Address 275, care of this office.

LOCATION FOR EYE, EAR, NOSE AND THROAT SPECIALIST

To a specialist in the above line, an excellent location is offered in a Northwestern city of over 30,000 population. Office with a physician and surgeon and dentist. Rent reasonable. Address 269, care of this office.

SUBSTITUTE WORK WANTED

By a physician who has had ten years' experience in general practice. Available at once. Address 265, care of this office.

PHYSICIAN WANTED

In a Northwestern Iowa town of 600, a well-qualified physician is wanted to take over a practice of $3,000 to $4,000. Nothing to buy. Office rents for $12 a month, and a good man can step in and go to work. Address 266, care of this office.

PRACTICE FOR SALE

A $5,000 practice in a Southern Minnesota town of 2,000 population is offered for sale at price of equipment. Best farming section in state. No hospital. Competition not strong. Am going to specialize after fifteen years' general practice at present location. Address 264, care of this office.

PRACTICE FOR SALE

A Minnesota practice of $7,100 annually, in town of 3,300, modern in every way. Will sell for price of equipment. Reason for leaving, specializing. Excellent opportunity for young man or man doing surgery. Address 280, care of this office.

MINNESOTA PRACTICE FOR SALE

A well-established $8,000 practice, 35 miles from the Twin Cities is offered for sale for price of residence and office. Population 1,200 with rich and thickly settled farming community, mostly of German descent. Good collections. Reason for selling, specializing. Address 281, care of this office.

PHYSICIAN'S RESIDENCE AND PRACTICE FOR SALE IN ST. PAUL

The widow of a recently deceased physician in St. Paul offers her home, etc., for sale. House has six living and two office rooms and is thoroughly modern. It is located in a rapidly growing part of the city with splendid street car service. A new physician in this location can start with a good cash practice and build up rapidly. Address 282 care of this office.

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THE RELATION OF THE LABORATORY TO CLINICAL MEDICINE IN THE LIGHT OF PRESENT-DAY MEDICAL ADVANCEMENT*

By J. C. Ohlmacher, M.D.
VERMILION, SOUTH DAKOTA

The trend of modern medicine is away from the empirical and towards the exact, the scientific. The future of medicine looms bright on the horizon of promise, and directs our steps with new enthusiasm along the pathway made luminous by many great men of science in the fields of biology, physiology, chemistry, pathology, physics, psychology, applied medicine, and the like. For the past one hundred years experiment has been taking the place of theorizing, until now nothing is taken for granted in medicine; the attitude of "Show me" has become a dominant feature of the modern medical mind; no theory long survives unless substantiated by convincing proof; "the patient work of thousands of observant clinicians and painstaking laboratory men is exposing disease to the light of science, and some day it may be wholly conquered." Utopian as may seem this dream, it is the goal towards which medicine has set its face, and it is the dream of broad-gauged medical men everywhere.

When one contemplates the great advances that have been made in medicine in recent years, he stands in awesome wonder, and must feel convinced that many of the disease processes that now attract attention only when fully developed, will, with the more modern means of diagnosis, be anticipated long before full fruition, and be, therefore, better controlled. The medicine of the future will be preventive rather than curative.

It seems but a short time ago since Virchow's studies in cellular pathology laid the foundation upon which was erected the rational study and research in this branch of medicine, and the immortal Pasteur's researches into the realms of bacteriology furnished the basis upon which the rationale of the treatment and prevention of infectious diseases was to rest.

"We are now living in this day at the greatest moment in the history of medicine." One important discovery after another comes from the laboratories and clinics throughout the world, and many of these discoveries, in their application, replace or augment the older methods of diagnosis and treatment. Alert, indeed, must be the busy practitioner if he keeps abreast of the times, and applies to his practice the best there is in medicine. In fact, if the physician lags his "race will soon be run," for the laity, also awakened to the new conditions, will soon be demanding the very best from their medical consultant.

Now, gentlemen, permit me briefly to mention a few of the more recent methods of diagnosis and procedure which greatly aid the clinician when applied to his practice, or which appear to open up new and important fields of medical activity.

"The study of immunity, once of merely theoretical interest and purely scientific importance, is today no longer such. A realm of practical considerations, considerations which are constantly coming up and enlisting the attention of the busy practitioner, have little by little supplanted those phenomena at one time vaguely understood and mostly taken for granted. Gradually have the uncertainties so long dominating and obscuring an intelligent comprehension of the subject been cleared away; mistakes explained; and hypotheses re-established as proven facts. The methods employed for the necessary investigations have naturally improved and increased with such extreme rapidity that a severe task presents itself to one who desires to separate the more from the less valuable ones."

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

To Bordet and Gengou belong the honor of discovering complement fixation as a specific test for the differentiation of bacterial diseases, and to Wassermann belongs the credit of applying a modification of this test to the diagnosis of syphilis. The Wassermann test is of great practical importance, as you all know, in the diagnosis of syphilis, particularly late syphilis. The complement fixation test as applied to the diagnosis of other bacterial diseases of obscure nature presents more uncertainties and is of much less practical importance. It has not taken the place of more simple and direct methods of procedure.

The pregnancy test of Abderhalden, which primarily caused intense interest in purely scientific circles and later caused much enthusiasm in much wider circles, has, under the scrutinizing eyes of many serologists, lost favor to a great extent. "It may be definitely stated that this test has failed to establish itself as possessing value in the diagnosis of pregnancy." Interest in this test has been revived in the study of certain mental diseases and the diagnosis of obscure lesions in the body. Thus Retinger, formerly of Chicago, claims to be able to definitely locate many and various gross lesions through the application of this test, and some workers claim that the distinction between carcinoma and similar affections is well shown in like manner. Though I am very skeptical as to the successful application of this test to practical medicine, such experiments as Retinger's are exceedingly interesting and perhaps deserve serious attention. Certainly, if the claims of certain serologists, working along this line, prove true, diagnosis will have received an impetus, placing it far in advance of its present enviable position.

The part played by anaphylaxis in the production of many symptoms and disease processes in man, is ever becoming more apparent, and it seems that we are on the threshold of new discoveries which may lead to procedures revolutionizing our therapeutics in certain abnormal conditions. It is fairly well agreed that certain symptoms, such as headache, rheumatoid and neuralgic pains, certain forms of asthma, hay fever, and the like, and such disease processes as arteriosclerosis, nephritis, etc., are frequently manifestations of that reaction called *anaphylaxis,* resulting from the frequent introduction of foreign proteins from within or without the body, into the systemic circulation. You all are well aware that in hay fever various pollens (vegetable proteins) are held responsible for this reaction, and that in asthma proteins as represented by a long list of substances, such as animal hair, feathers, dermal scales, shell fish of many kinds, fruit, and vegetables, are variously blamed. It may not be so well known that foci of infection frequently produce this condition. The activity of bacteria in these foci is continually causing disintegration of tissue, and the products of this disintegration, together with such proteins as result from the disintegration of the bacteria themselves, flood the blood stream as foreign proteins, eventually producing antibodies. These antibodies are supposed to be in the nature of amboceptors, linking the foreign protein (antigen) with the blood complement in such a manner as to result in the cleavage of the protein, these cleavage products, in some manner, giving rise to the phenomenon, anaphylaxis. Rheumatoid and neuralgic pains and other manifestations thus become evident.

Recently success has attended some of the efforts to cure certain forms of headache, manifestly a symptom of anaphylaxis, by first finding the protein or proteins at fault; secondly, by withdrawing the involved proteins from the diet; or, thirdly, by desensitizing the patient through the judicious administration of the specific proteins. The proteins giving rise to anaphylaxis are determined by applying various proteins, suspended in salt solution or some other menstruum, either to the scarified skin, as in the von Pirquet tuberculin test, or by injecting the material interdermally, a positive reaction being similar to a positive tuberculin or Schick test.

A short time ago W. W. Duke advanced the idea that certain abdominal pains and abdominal turmoil are due to the action of food proteins on the sensitized gastro-intestinal mucosa. Duke claims that the withdrawal of these proteins from the diet, in certain selected cases, results in more or less permanent relief from the trouble.

Such investigations as the above are still in their infancy, and it behooves the practitioner patiently to await further and more convincing developments before generally adopting these procedures in his practice. I am informed that certain commercial laboratories are even now advertising prepared proteins for the diagnosis and treatment of anaphylactic conditions. The application of proteins for the purpose of diagnosis may not be a dangerous procedure, though it may result in many errors of diagnosis in the hands of those not versed in the principles and practice of immune reactions. On the other hand, the application of proteins as desensitizing agents is potentially dangerous, and, for the present, at least, should be left in the hands of skilled specialists.

In 1907 I read a paper before the Dubuque County Medical Society of Iowa on "Some Cases of Acute and Chronic Infection Treated by Wright's Vaccine Method." In the then state of development of a procedure which promised great therapeutic conquests, I voiced the following sentiment: "That the employment of this treatment, if it be successful, must remain in the hands of those who have had years of experience in bacteriology, along with sufficient clinical education to enable them to use proper judgment, seems self-evident." At a somewhat later period I had the following to say before the Iowa State Medical Society: "Such practice as the indiscriminate employment of stock vaccines, and the attempt of unqualified medical men to practice opsonic therapy in its various branches, should meet with strongly expressed disapproval and practical discouragement by all progressive and thinking physicians"; also, "The present tendency of certain laboratories to gain commercial supremacy by entering upon an advertising propaganda in which the virtues of their bacterial vaccines and other products are grossly exaggerated, should be checked by the same drastic means as is employed against firms of less pretentious standing, which forsake ethical paths for commercial expediency." With but slight modification, I maintain the same sentiments regarding some of our present-day discoveries in treatment and diagnosis. Not competing in general or special practice, and having no "ax to grind," my purpose in voicing these sentiments should not be questioned.

Now, just a few words regarding a few other late developments in medicine, before entering upon a discussion of the relation of the laboratory to the clinic.

Chemical analysis of the blood has been attempted for years in the physiological laboratories, and matters of interest, apparently, only to pure science, were investigated and received attention in purely scientific circles. The application of blood analysis, by improved methods introduced by Folin, to clinical medicine has been a very recent development. Now, however, the chemical analysis of the blood is recognized as a matter of great moment in determining the physical status of individuals. New discoveries in this important field of activity are constantly adding to our knowledge of metabolic by-products and their effect upon the body economy. Whereas, we have largely depended upon urinalysis to furnish an index to abnormal functioning, particularly as it involved the kidneys and the liver, we now have come to rely more fully upon finding excessive amounts of retained chemical products in the blood. Though urinalysis must always assume considerable importance in furnishing data of value from the standpoint of diagnosis and prognosis, though less so from the standpoint of treatment, the newer methods of blood chemistry have already supplanted it in value, and no clinical laboratory is complete which is not equipped to make these examinations.

In urinalysis we have to deal chiefly with overflow products of destructive metabolism or hyperfunctioning, and their presence in urine is always comparatively late. In blood analysis we determine the presence of retained products of altered metabolism, which may not as yet have reached the stage of overflow, but which, nevertheless, are of great diagnostic and prognostic significance. To illustrate: the sugar which appears in the urine in diabetes mellitus is generally a late manifestation of perverted carbohydrate metabolism, and represents the overflow of previously retained sugar in the blood, whereas the excess of sugar in the blood (hyperglycemia) may be so early a finding as to antedate, for a comparatively long time, the clinical manifestations of the disease and the presence of sugar in the urine. In the light of such facts it begins to look as though blood chemistry puts us on the threshold of anticipating certain disease processes, as we understand them today; and, if such be the case, what can we not accomplish in the matter of prevention? It seems to me that at present one of the most important measures of blood analysis concerns the determination of the alkali reserve and the comparison of this with the amount of carbon dioxide in alveolar air. These two values are practically at equilibrium in health. The determination of either one of these values is of great importance in revealing an impending acidosis, the terror magnum of all medical men, but more especially of the surgeon.

Now, just a few words regarding the importance of the laboratory to clinical medicine.

But a comparatively short time ago, when medicine was mostly an art, and not largely a science, as it is today, it was the rule to look upon the laboratory and the laboratory worker as of minor practical importance. The infantile science embellished, but added very little of practical value to the art. The laboratory worker was looked upon—and in many instances, justly so—as a pure scientist, knowing little and caring less about the practical side of medicine, and a barrier grew up between these important branches of a great science. Today, in the light of the many discoveries of much practical value which have come from the laboratory, the bigger men in medicine see the necessity of closer, more mutual relationship between the laboratory worker and the clinician, and the present tendency is "to break down the partition; to combine the laboratory and the ward into two departments of one system; to make the physician familiar with the results and methods of the pathologist, chemist, and physicist, and these with the practical problems of the bedside." Yes, the laboratory worker is coming into his own. Now no clinical group or hospital is complete without a thoroughly equipped laboratory, directed by a competent pathologist, under whose supervision or through whose personal activity all the new, proved methods of diagnosis and procedure are carried out in exacting detail.

The demand for competent pathologists and other laboratory workers has become so great as to exceed the supply, and in this exigency some clinical groups and even hospitals are resorting to half-way measures, such as employing technicians or poorly equipped medical men to carry on the important work of the laboratory. In some instances clinicians are training girls, preferably nurses, under their own imperfect directions. I have had letters from physicians, clinical groups, and even from hospitals, urging me to take some nurse into the laboratory for a few weeks, that she might acquire the technical training which would fit her to do the laboratory work that might come to the physician, clinical group, or hospital. Think of it! They expect this nurse to acquire at one bound that which has taken the pathologist, with all his fundamental and subsequent medical training, years to acquire.

There is a decidedly distinct and important place for the well trained technician in all laboratories doing sufficient work to warrant their employment, but that place is not one of making diagnoses and assisting in their application to clinical medicine. It is one of procedure alone, in which correct dilutions and measurements form the chief part, and simple, routine microscopic and chemical examinations are of importance. The laboratory technician is, at the best, but a trained, possibly I should say scientific, mechanic. The pathologist, on the other hand, if worthy of the title, is a trained, scientific consultant, able to apply laboratory findings to bedside practice at their true value. The pathologist with little or no clinical training is but a step in advance of the well-trained technician. May I add that I discredit the laboratory worker, be he simply a technician, pathologist, or what not, who thinks the laboratory represents the ne plus ultra in diagnostic procedure, thus failing to recognize the great value of clinical history taking and clinical observation. Likewise must the clinician be discredited who holds the laboratory in contempt, believing, or pretending to believe, that he is able to depend entirely upon his own diagnostic acumen, in all or most of his cases, in arriving at a correct diagnosis.

Dr. McCarty of the Mayo Clinic sums up the function of the clinical pathologist as follows:

1. "Confirmation of diagnosis, of which the clinician might have had some suspicion."
2. "The diagnosis of conditions which the clinician did not suspect."
3. "The correction of clinical diagnosis."
4. "The confirmation of positive diagnosis."
5. "The recognition of accessory pathological conditions."
6. "The determination of stages in the course of disease."
7. "The determination of the physical status of the patient preparatory to possible operation or other treatment."
8. "Assistance in determining the extent of operations."
9. "Determination of data for preoperative, operative, and postoperative prognosis."
10. "Determination of the cause of death in surgical and nonsurgical cases."

11. "Determination of the cause of death due to incorrect medical or surgical judgment."

12. "Determination of the cause of death resulting from incorrect operative technic."

13. "Assistance in determining causes and modes of surgical infections."

14. "Assistance in clinical, surgical, and laboratory research."

15. "The actual treatment of disease."

Permit me to cite a few of the things that I conceive to make for the ideal in group and hospital practice.

1. The union of medical men in the various spheres of medical activity whose paramount interests concern the welfare of the patient and the scientific and ethical advancement of their profession.

2. Thorough and up-to-date equipment, in clinic and wards, to permit all the advanced and proven methods of clinical diagnosis and therapeutic application.

3. An up-to-date library containing the latest and best books and periodicals treating of the various phases of medical activity.

4. The holding of weekly or semi-weekly conferences, at which time interesting, puzzling, and rare cases may be freely discussed, and topics of interest concerning new scientific medical advancements may be considered.

5. The encouragement of clinical and laboratory investigations which may prove of moment to advancing medicine.

6. The establishment of a completely equipped laboratory where all the usual routine and the newer methods of laboratory diagnosis and original research may be carried on; this to be under the supervision of a competent pathologist, and the personnel of which should in all cases be such as to fully meet the demands of scientific medical advancement and the amount of work coming to the laboratory. (The director should not be swamped with routine, such as ordinary urinalysis, blood counts, and the like.)

7. The recording and filing of case-histories, including clinical findings, laboratory findings, treatment, autopsy findings, etc., and the publication of papers in reference to cases of special interest, and articles covering clinical and laboratory research, or the publication of a yearly or biennial bulletin containing matters of interest or value to the profession.

You will say that this is too ambitious a program for the small clinic, but nothing will add so much to the prestige or dignity of the clinic, and an earnest attempt should be made along this line. The quality of the work of the small clinic can and should be equal to that of the large.

In closing, I wish to say that I believe there is a great need in this state and elsewhere to standardize laboratory methods. I also believe that those having charge of laboratories should be licensed by some governing agency capable of raising and maintaining the standard of requirements to such a degree as to weed out all incompetents. Only in this way may we hope to do away with halfway, haphazard methods, poten- practice.
tially dangerous in their workings as applied to

DISCUSSION

Dr. Mortimer Herzberg (Sioux City, Iowa): Dr. Ohlmacher has covered the points so thoroughly in every possible detail, both practically and theoretically, that there is very little to discuss. There is a point or two which in my past experience in connection with the hospital where I am now working I might draw your attention to. We have largely, as the doctor pointed out, two classes of physicians, those who believe in laboratory work and those who do not. The men who do not believe in laboratory work are away behind the times and are puttering along and picking up what information they can. When we come to the men who do believe in laboratory work they may be divided into two classes: the man who believes in laboratory work and is enthusiastic over it. In fact, he is almost maniacal, you might say, in his enthusiasm, so much so that everything he reads in any journal, no matter what the journal is, whether an advertising journal or reputable journal, he accepts as gospel truth and he rushes to the laboratory and wishes to have this or that done. The laboratory man will tell him that it is not worth while, and then he thinks the laboratory man's judgment is no good. Occasionally, it is not in that regard. He will probably go to a laboratory of low standard, and have a good deal of work done at considerable expense to himself and with no good results to his patients. Laboratory procedures are being brought out every day, and it takes careful judgment on the part of the laboratory man to decide on the probabilities of such a procedure. The essayist mentioned as an example the Abderhalden test. When that was first brought out I could not see that it was going to amount to anything, particularly with reference to the diagnosis of malignancy. It was supposed that we could diagnose malignancy in its early stage. I could not see that at all. If we stop to think, how are we going to tell when an ordinary wart or a papilloma, as the pathologist calls it, ceases to be an epitheliomatous overgrowth and is converted into a true epithelioma? There is no borderline, and I do not believe the Abderhalden test can tell us any such thing as that. One must, in applying laboratory methods, rely on the judgment of the laboratory man or the pathologist. These are the men who are overenthusiastic. They rush to everything. They are the men who do not use their judgment in deciding on what really amounts to anything. They want everything done. They are too enthusiastic. I remember hearing Dr. Osler, years ago, make the statement with regard to opsonic therapy and the opsonic index, at the time the world was enthusiastic over the work of Wright, that the world had gone opsonin crazy. That was largely true. We have discarded a great deal of that work so far as its practical application is concerned. So much for those who are overenthusiastic.

There is a large group who believe in laboratory work if it is convenient to believe in it. My experience has been that where a great deal of work has been ordered so frequently men have paid no attention to the results, especially if those results did not agree with what they thought was right, and that is bad procedure. If the laboratory man is of any value at all, his opinion should be respected, although it may not agree with the original diagnosis, and still it may be correct.

I have a number of instances in mind in my recent hospital work in which reports were rendered perfectly clearly in writing, yet the surgeons went ahead with the procedure, disregarding the laboratory report, and the condition resulted disastrously so far as the patient was concerned. These are some of the points that we need to consider. Some of the newer methods that are coming up are in the experimental stage, while others are well advanced.

In closing, I can only draw attention to that particular point which is the essence of the doctor's paper, namely, the pathologist in the truest sense should be a consultant, and not a mere technician, in laboratory work.

Dr. J. P. Isaac (Freeman): I want to ask Dr. Ohlmacher a question about the typhoid test. The state laboratory sends us little envelopes. We put samples of blood into them and send them back to the laboratory in good faith. I have always received negative replies. One day I became suspicious when I knew I had typhoid to deal with, and still the reports came back negative. Dr. Herzberg has divided us into two classes. If these little envelopes are only teasers for that class who want everything done, why do you keep on sending them out? If they are any good, why don't I get results?

If my question is out of place, ignore it, but, if there is any way of clarifying the situation, let us know about it.

Dr. J. C. Ohlmacher (closing): I wish to supplement the remarks of Dr. Herzberg by saying that there is a class of physicians which the doctor did not speak of in this connection. I refer to those physicians who are so enthusiastic and have so much faith in the findings of the laboratory that they become almost, if not entirely, dependent upon these findings, no matter whether they fit in with the clinical features of their cases, or not. Certainly a reasonable doubt as to the true nature of such a case thus arises and, at the very least, further study of the case is indicated. My own experience in the field of clinical medicine has taught me the great value of carefully acquired history and careful clinical observation.

So far as Widal tests are concerned, our laboratory, like every other laboratory doing much work occasionally obtains results at variance with the clinical features of a given case. Several factors may play a part in this matter. I cannot help but feel that an attempt to make anything like proper blood dilutions for this test from small drops of dried blood, as are supplied this and most other similar laboratories, while offering some practical advantages, is far from ideal, and offers grave possibilities of error. Correct dilutions are essential to the best results in this test, and can only be obtained when we have the blood serum and not the whole, dried blood to work with. I wish to state that in a conversation with Dr. Herzberg, relative to this matter, he expressed himself as well satisfied with the dried-blood method. Naturally, since Dr. Herzberg's experience with this and similar laboratory procedures is extensive, his opinion must bear considerable weight. The Widal reaction is usually a late manifestation of typhoid infection, and in very severe cases may not make its appearance until convalescence is well established. The paratyphoids, especially the para "B" infections, may closely simulate or present identical clinical features of typhoid, and this feature should be considered when repeated negative Widals with the typhoid organism are found in any case in which the clinical picture is that of typhoid. Though we find it impractical, at our laboratory, to run all three of these related organisms, as a routine procedure in making our Widal tests, we continue to do this upon request. A point that I have repeatedly emphasized for years, whenever an opportunity presented itself, is the advisability of making blood cultures in all cases of suspected typhoid fever. The organism of typhoid fever is usually found in the blood very early in the disease, a thing not true of the agglutinins, and by the adoption of this method a definite diagnosis may be made much earlier than by relying upon the Widal test. By this method we are also able to distinguish between a typhoid bacteremia and one due to some other organism, a matter of great clinical importance. The Keidel culture outfits, employed in this procedure, are readily obtainable and easily applied, and should be more generally used. Blood thus obtained should be sent to the laboratory in all cases in which any question arises as to their true identity. I wish to add that during the past two years the routine bacteriologic work has been under the charge of Dr. Scott, assistant director. I consider Dr. Scott one of the most competent bacteriologists in this part of the country, and, if his results have occasionally been at variance with the diagnosis of the clinical men, I am convinced that this can not be attributed to inexperience or lack of knowledge.

In reference to the unreliability of the Wassermann as an aid to diagnosis of syphilis, I wish to say that I believe that this test, properly conducted, is the most valuable method we possess in the diagnosis of syphilis, particularly where the clinical manifestations of the disease are obscure, as is so often the case. A number of years ago I presented a paper before the Sioux Valley Medical Association,* in which I directed attention to the very things that have been referred to. I went further, however, and told how the difficulties encountered could be so handled as to largely offset the possibility of error. Thus I called attention to the fact that blood sent for long distances, particularly in the heat of summer, frequently becomes hemolized or infected, and that such blood is apt to give false reactions, especially false positive reactions. I then advised that the pure blood serum, and not the whole blood, be sent to the laboratory, a procedure, by the way, now strongly recommended by numerous laboratories. Another thing advocated in that paper was the running of an anticomplementary control with each serum tested, a procedure we had adopted at the State Health Laboratory. With this control we are able to eliminate most, if not all, serums giving false positive reactions from one cause or another.

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*"The Wassermann Test. A Plea for a Standard Method"—Minnesota Medicine, December, 1920.

SOME REMARKS REGARDING THE OPERATIVE TREATMENT OF CANCER OF THE STOMACH*

By August Eggers, M.D.
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Comparatively few cases of cancer of the stomach are proper cases for resection. Cancer of the fundus of the stomach causes so little suffering before ulceration sets in that, when the patient comes to the doctor, the case is usually inoperable with spreading to the spleen, liver, and colon or with cancerous nodules spread around in the abdomen. In the few cases where an early diagnosis is made and the case found operable, the mortality is very high, partly due to the difficulty of access and partly to the difficulty of making anastomosis with the very small stump of the stomach left after resection.

My remarks will, therefore, be limited to cases of carcinoma located in the pyloric and prepyloric part of the stomach.

These patients form, from a surgical point of view, a class by themselves. They are nearly all in a very poor condition, being half starved, due to the retention in the stomach, emaciated, cachectic, and worn out by vomiting and pain. Their age is also usually against them.

Then there is another characteristic feature, which has always struck me forcibly, namely, their peculiar apathetic resignation, which, among the deeply religious farming population of our state, assumes the form of a religious resignation, which seems to sap them of all backbone and all desire to make a fight for their life. As soon as they hear that they are suffering from cancer of the stomach they give up all hope, as they have seen so many die from it. They do not think an operation will do any good, and, when they submit to it, it is usually because their relatives want it. I have found it a severe handicap to fight against.

In a general way, there are four things which these patients can not stand: namely, hemorrhage, infection, rough handling of the tissues, and deep narcosis. Fortunately, the technic of resection of the pyloric and prepyloric part of the stomach has become so perfected that the operation, which was a very bloody operation when first introduced by Billroth, can now, owing to the systematic ligature of the four main blood vessels, be made nearly bloodless, unless the pancreas has become involved. One of my patients, 72 years old, lost not over two or two and one-half ounces of blood.

A mild form of infection, of course, cannot be avoided. The stomach, which, owing to the usual lack of free HCl, always contains fermented and infected material in spite of the most careful lavage before the operation, has to be opened to re-establish the continuity of the alimentary canal; the most scrupulous care in packing cannot prevent the soiling of the immediate neighborhood of the gastro-enterostomy, and even the most careful toilet of the peritoneum is not able with certainty to remove all infection. I must, therefore, strongly advise drainage. I have used a couple of strips of gauze, and it is surprising to see what an amount of fluid drains out in the bandage, even in cases which run an ideal course without rise of temperature and pulse. I cannot see any valid reason for not using it. We never can know at the finish of the operation how septic the contents of the stomach are and whether the, at the best, mild infection of the peritoneum is within the margin of safety which the patient is able to take care of. The slight delay in the healing is of no consequence, for the patient any way will have to stay in the hospital at least three weeks, by which time everything is healed, and we certainly do not risk, in our aseptic times and in our modern hospitals, any secondary infection from the outside when we use scrupulous asepsis during dressing and when we apply a large bandage up to the neck. I feel convinced that the ideal run of the two cases I am going to report was due, in a large measure, to the drainage.

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*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

I cannot emphasize enough the necessity of gentle handling of the tissues without pulling and tearing and with as little exposure as possible. Some pulling cannot be avoided in tying the gastrohepatic ligament close up to the cardia to extirpate all glands; but good assistance will help wonderfully here. By being careful in this way we can also reduce the depth of the narcosis to a minimum; the patient can be kept nearly awake all the time after the incision is made, as the operation causes very little pain when the tissues are gently handled. The length of the narcosis does not seem to be of any great importance when it is very shallow,—an experience which I have found confirmed in other long operations.

There is a special preparation of these patients which I always use and which I can highly recommend, namely, a subcutaneous infusion of one quart normal saline solution, about one and one-half hour before the operation. These patients are considerably dried up from lack of absorption, due to the retention in the stomach. They need fluid even more than nourishment. One quart about one and one-half hour before the operation, followed by another quart right after the operation, will supply some of this much-needed fluid, will materially prevent shock, and will help to take care of the unavoidable but small amount of hemorrhage and infection. This I have followed with one quart on each of the succeeding two days, if the patient was in a badly starved condition, supplying in this way four quarts of fluid to the patient's system. I believe that I owe to this treatment, together with the drainage, the very reactionless run of the operations. It is also remarkable what a feeling of confidence and safety it gives the operator during the operation to know that he has provided the patient in advance with a broad margin of safety in case of unexpected trouble.

My excuse for reading this paper, which does not present anything new, is to draw attention to a method of resection which I have reason to believe is not as well known as it deserves to be. This operation was excellently described and illustrated in the Mayo Clinic Annual Volume for 1917 by Dr. Balfour, and is by him called a modified Polya's operation. I refer everybody to this description, which is so clear that it is easy to perform the operation after this description without having seen the operation performed.

To avoid misunderstanding, however, and to make clear what I am speaking about, a few short remarks are necessary. This operation is a form of Billroth's second operation, the salient feature of which is to close the resected end of the duodenum, and, after the resection of the stomach, to re-establish the continuity of the intestinal canal by an anastomosis between the stomach and the jejunum. The original and most used form was to close the end of the stump of the stomach and make an ordinary gastro-enterostomy, preferably a posterior one, or, if that was not possible, an anterior one. Polya's modification consisted in not closing the end of the stomach, but making an end-to-side anastomosis between the end of the stomach and a loop of the jejunum, which was pulled up through an opening in the mesocolon transversum. The drawback of this operation was that, if the stump of the stomach left after the resection was small, it was difficult or impossible to bring the stomach down to the opening in the mesocolon transversum, so that this could be sewed to the line of the anastomosis, which is absolutely necessary to prevent the jejunum from being drawn up through the opening in the mesocolon transversum, with great danger of future incarceration.

Polya's operation therefore has been modified as described by Dr. Balfour that way, that the loop of the jejunum is not brought through the mesocolon transversum, but is brought up in front of the transverse colon, as in ordinary anterior gastro-enterostomy, and then an end-to-side anastomosis made as in Polya's operation.

I have no experience with Polya's operation. Those who are interested in this subject will find the technic of this operation described and illustrated in an article by W. J. Mayo in the Mayo Clinic Volume for 1915. The ordinary second Billroth operation with posterior gastro-enterostomy, I have performed several times, and therefore I am able to compare this and the new operation from my own experience.

This operation, which, for shortness' sake, I shall call Balfour's operation, has a great many advantages over the old method, both from a purely technical point of view and from the better prognosis that it gives the patient.

Technically, this operation is comparatively easy, leaving of course out of consideration the difficulty due to complications, such as adhesions, spreading to the pancreas, etc. The operative field is superficial all the time and by packing can easily be walled off from the rest of the abdomen. There is no undue exposure by lifting up the colon and omentum, as in posterior gastro-enterostomy. In this connection I will strongly advise that the operator hunt up the loop of the jejunum after he has tied off the small and large omentum and isolated the tumor, but before the tumor has been resected and his hands have possibly become soiled. In this way all danger of an infection of the abdomen, below and under the transverse colon, is avoided. When the loop is brought up, the position of the anastomosis may be marked by placing a stitch of black linen at the upper end of the anastomosis and of white silk or white linen at the lower end. A rubber-tipped forceps may then be attached to the mesentery, and the loop dropped down below and out of harm's way till needed, when it is simply pulled up again all ready.

Another great advantage of the operation is that nothing of the stump of the stomach is sacrificed by the double invaginating sutures, as in the old method. It always gave me a very unpleasant shock to see how small the stump had become after the closure of the end of the stomach. It made the posterior gastro-enterostomy by far the most difficult part of the operation. In Balfour's operation the end-to-side anastomosis is very easy, nearly as easy as the closure of the stump, and it does not take so very much more time.

In both my cases I have not used the whole open end of the stomach for anastomosis, but have closed the lower inch and the upper inch or one and one-half inch with a Connell's suture, and then invaginated this with a Lembert suture, to give extra safety. I have then covered this suture line with the part of jejunum adjoining the actual anastomosis opening above and below. This prevented all possible danger of leakage from the angles, and also gave the stump of the stomach a more hopper form or funnel form. Another small technical detail seemed to me to be of some advantage. After having placed the posterior line of sutures joining the jejunum to the stomach, instead of removing the crushing forceps from the stomach and then opening the stomach by trimming off the crushed part, in that way exposing the posterior suture to the stomach content, I covered this suture with gauze, rolled the crushing forceps over to the right, covered that also with gauze, and then cut through only the anterior wall of the stomach close to the forceps. In this way the stomach content would run out in front where it could easily be wiped off. When all had run out and the field was wiped clean, the forceps was removed by cutting through the posterior wall of the stomach also close to the forceps. As the contents of the loop of the jejunum in these cases of stenosis of the pylorus consist merely of bile and pancreatic juice, and are consequently nearly aseptic, and as it is also very easy to squeeze the loop empty and close it with forceps above and below, we do not run any risks of infection from this source.

The Balfour operation has great advantage also from the point of the prognosis for the patient. Because of the much easier technic and because nothing of the stump is sacrificed by closing, as described above, a more liberal margin of safety can be given by cutting farther away from the tumor into the healthy stomach. But the most important advantage is the excellent way in which the anastomosis acts. The stomach stump simply acts as a funnel or hopper, so that, in the few minutes it takes the patient to lie down on the table after drinking the barium buttermilk, it is already far down in the jejunum. This is extremely important. This class of starved patients need nourishment as quickly as possible, and as much as possible. With the old operation the feeding had to go slowly, and the operator would sometimes have the very disagreeable experience that a patient who had stood the operation well would die in two, three or four weeks after the operation from inability to pick up strength. His strength had been so sapped away by his starvation that the slow, careful feeding necessary, often combined with an irritable stump of stomach causing vomiting, was too slow for him, and he would gradually succumb at a time when the incision was all healed and he was sitting up and already had commenced to move about. After the Balfour operation the patient can be fed right away. Both my patients vomited very little after the operation, and they were given milk very soon after without causing any difficulty. The value of this operation is shown by Dr. Balfour in the remarkable decrease of mortality in the Mayo Clinic by this operation. The mortality of the Polya's operation was 14 per cent, while it was only 5 per cent by Balfour's operation.

I herewith report two cases:

Case 1.—Mr. O. M., Mayville, N. D., aged 66 years, was operated on September 30, 1920.

The patient was very cachectic and anemic; looked whitish-yellow, and was very emaciated. He had been vomiting every day for over three weeks. There was a large tumor in the epigastrium, which was freely movable. No free HCl after Ewald's test-meal. Nearly complete pyloric obstruction; liquid taken in the evening was nearly all retained in the stomach in the morning. No *x*-ray examination was made, as none was necessary for diagnosis.

At operation there was found a large nodulated tumor, firmly adherent to the mesocolon transversum, to the head of the pancreas and to the gall-bladder. In loosening the tumor from the mesocolon a small abscess, containing a teaspoonful of pus, was opened. This and also the extensive adhesions were surprising in view of the fact that the tumor was quite movable. Large glands in the gastrohepatic ligament, close to the cardia. None along the large curvature, but one in the bend of the duodenum.

Hypodermic infusion of one quart normal saline solution one hour before the operation, and the stomach washed out. Balfour operation.

Abscess caused some trouble and delay. Some hemorrhage in loosening the tumor from the head of the pancreas. Two gauze drains inserted to seat of the abscess.

Condition at the finish of the operation just as good as before the beginning.

Subcutaneous infusion of 850 c.c. of normal saline solution after the operation.

Some slight vomiting the first day. Milk was given next morning, and the nourishment rapidly increased.

Owing to the presence of the abscess the patient ran a moderate temperature for two weeks, but the pulse never was over 90, except two days, when it went up to 100. Otherwise uneventful recovery, and the patient went home on October 30, 1920, one month after the operation.

I examined the patient fourteen months later, at the end of November, 1921. He looked the picture of health, had rosy cheeks, had gained 30 pounds and had worked in the fields all spring, summer and harvest. No sign of any recurrence.

Case 2.—Mrs. S. T. R., Hospital case No. 719, was operated on May 28, 1921.

The patient, aged 72, was very emaciated, feeble, and cachectic. She had been vomiting every day for from two to three weeks. Nearly complete obstruction of the pylorus; liquid taken in the evening was nearly all retained in the morning, fourteen hours later. No free HCl after Ewald's test-meal. A hard, medium-sized and quite movable tumor was in the epigastrium. As it was unnecessary for the diagnosis no *x*-ray examination was made owing to her feeble condition.

Operation on May 28, 1921.

The stomach lavaged in the morning, and one quart of normal saline solution given hypodermically one hour before the operation.

Balfour's operation.

A hard, movable tumor occupied the pyloric and prepyloric part of the stomach, nearly closing the pylorus. Some adhesions to the mesocolon transversum. Hardly any swollen glands.

Owing to the patient's very feeble and dried up condition the utmost care was taken to avoid hemorrhage, and she did not lose more than two or two and one-half ounces of blood. Her condition at the end of the operation was as good as before the beginning. Two gauze drains were left in.

Her recovery was ideal. There was no vomiting, except once on the fourth day, when some nourishment nauseated her. There was no pain; 1/8 gr. of morphine was given only twice to relieve restlessness. One quart saline solution was given hypodermically after the operation, and one and one-half pints the next day, and one quart on the third day. Saline solution also given by proctoclysis.

The temperature and pulse were practically normal the whole time. Six hours after the operation she was given a teaspoonful of milk every one-half hour, which the next day in the forenoon was increased till one-half ounce was given every hour, and in the evening to one ounce every hour. On the day after also one ounce of malted milk and on the third day gruel, eggnog and broth. After that the feeding went along smoothly. The bowels never caused any trouble. Seven days after the operation she sat up one hour in a chair, and on the tenth day she commenced to walk a little. On the seventeenth day she walked four blocks. She was getting fat and commenced to get rosy cheeks. And she left the hospital on June 24, twenty-seven days after the operation, looking the picture of health.

I got a report about her after New Year's and she was feeling fine; had gained over twenty pounds (she was a small woman) and had been doing all her work during the fall.

About three weeks ago she presented herself for examination. An x-ray picture was taken, which showed good functioning of the gastroenterostomy opening. No sign of any recurrence.

DISCUSSION

Dr. Wm. H. Witherstine (Grand Forks): Dr. Eggers extended to me the same courtesy that was extended to Dr. Rindlaub by Dr. Pratt, in giving me a copy of his paper.

To those of us who are more familiar with the work, or class of work, that Dr. Eggers is doing, it is not astonishing that he should have good results in resection of the stomach. Balfour's modification of Polya's resection of the stomach is, I think, at present the method of choice in resection of the stomach and in restoration of the gastro-intestinal tract following resection. There are one or two points in technic as used by Dr. Eggers and described by him which, it seems to me, should be used cautiously or not at all. First, the point of drainage. I can see the wisdom in the first case, where there was well-defined abscess providing drainage, but I think in the majority of cases drainage does more harm than good.

The second point is closing, or partially closing, the opening in the stomach from both angles, above and below. I can see no objection to using the entire opening of the stomach, but should we wish to close it I think closure from above is sufficient. It has always seemed to me that the angles were the most difficult part of the closure, and I should dislike to have two such angles in the suture line.

In speaking of cancer, I think we should be very cautious in our diagnosis of cancer of the stomach, without a microscopic diagnosis. Unquestionably there are tumors of the stomach which closely resemble carcinoma of the stomach, but which are really only giant ulcers, the removal of which will be classed as cancer cure. McCarthy, of the Mayo Clinic, who has perhaps the largest fresh gross material in the world, recently said that with the resected tumor of the stomach in his hand he was unable to make the diagnosis in 29 per cent of the cases, which shows that we must be exceedingly careful.

Dr. A. W. Ide (St. Paul, Minn.): There are one or two things I would like to say. I think the essayist is to be congratulated on his success with the cases he has reported. One always feels exceedingly gratified when he is successful from an operative point of view, especially when he can report a cancer cure. I agree with Dr. Witherstine in regard to the point of drainage and the technic, in making the anastomosis between the full stomach line and below, and not partially closing the stomach. I think it has been the experience of many that that is the best method.

I wish particularly to suggest the possibility of a two-stage operation in these cases, and, as has also been suggested, the possibility of doing a gastro-enterostomy first, and then, according to the condition of the patient, going on to the second step. We often think we can only do a gastro-enterostomy, but oftentimes we can go on and remove the tumor. We recently had a case where we did a gastro-enterostomy, and then at a later date we removed the tumor.

The great point in these cases, it seems to me, as in all cancer work, is early diagnosis and early operation, and I believe as we learn how well these patients do—and the essayist has described quite a typical case with the patient not very sick—that a resection can be done, particularly with the Balfour technic. It is not a difficult operation, as these big operations go, and I believe we shall resect more cases and do these operations earlier rather than trust to luck with an anterior ulcer. We shall do a real resection rather than slow dissection of the ulcer.

Dr. E. P. Quain (Bismarck): Last year I read a paper before this Association about our experience with cancer, and some of you may remember the unfavorable results reported because so many patients were seen too late. Most of the cancers of the stomach have come to us so late that the condition could be definitely diagnosed before operation, and this, as a rule, means that the disease cannot be permanently cured. I have not yet seen a patient cured who had a pre-operatively palpable, malignant, gastric tumor. If Dr. Eggers' cases, therefore, should prove to be permanently relieved he is especially to be congratulated.

Much more hopeful are the cases in which at operation a gastric ulcer is found to be undergoing malignant change. When we begin to suspect cancer more frequently, even in the absence of the classic ear-marks, then, and only then, will our treatment become more successful.

We are sometimes called upon to do palliative gastro-enterostomy in cases of obstructive cancer at the pylorus in which radical excision is impossible. For some reason the tissues often fail to unite properly in the neighborhood of cancer and the suture line between stomach and intestine may give way even in the absence of infection. This is a danger worthy of careful consideration before undertaking this operation even in those patients who have not as yet had time to become emaciated. One case demonstrated to me this lack of healing power in a startling manner. The patient, a man aged 60, had a palpable pyloric cancer. He was in the early stages of obstruction and had not yet suffered materially from starvation. The tumor was found to be inoperable, as expected, but it was agreed beforehand with the patient that a palliative gastro-enterostomy should be made. A row of linen sutures was placed outside the usual catgut sutures, for more durable fixation. The patient did well for seven days; he took nourishment and was in all respects progressing favorably. On the eighth day he suddenly, explosively almost, developed an acute peritonitis from which he died in a few hours. At autopsy it was found that a linen suture had given way and produced the leakage which started the infection. In cutting the remaining sutures it was found that the intestinal loop fell away from the stomach almost as if two layers of rubber had been sutured together. There had been practically no attempt at union between the two viscera.

Dr. Eggers (closing): My intention was not to present my paper as one of cancer cure. My idea was not to speak of the outlook for a permanent cure of these cases of cancer. I only wanted to draw your attention to the modified Polya's operation and its advantages.

Since the question of the outlook for permanent cure has been brought up by Dr. Quain, I wish to state that I am not so pessimistic in my view as Dr. Quain. Unfortunately, the cases are usually too far gone before we get them for treatment. We usually cannot make a diagnosis before there is a palpable tumor or the *x*-ray shows a filling defect. However, the operable cases seem to give quite a good prognosis for permanent cure. Some cases that look hopeless may be found to be operable, and some which impress us as giving hope may be found to be beyond the operative stage.

As far as drainage is concerned, I did not refer to drainage in the stomach cases as a routine procedure. I use it only in gastric cancer, where there is retention and all sorts of septic material in the stomach. We must count on a certain amount of infection, and we never know what amount of vitality the patient possesses or how much infection the patient is able to take care of.

Dr. Witherstine advises the use of the whole length of the resected end of the stomach for the anastomosis, suggesting that this will take better care of the angles of the anastomosis opening. I cannot agree with his advice. The resected end of the stomach is often very long, and it is certainly unnecessary to have so large an anastomosis opening. I also think that the method which I described in my paper takes better care of the angles of the opening, by extending the sutures considerably beyond the angles, both above and below.

METHODS OF TREATING TUBERCULOSIS AS USED AT THE ORINOCO SANATORIUM*

Dr. J. E. Crewe, M. D.
ROCHESTER, MINN.

One has a right to be skeptical of anything now offered in the treatment of tuberculosis, for new cures have been offered by the score only to be forgotten. For the most part the best sanatoriums and tuberculosis specialists pin their faith to the three cardinal factors of rest, fresh air, and good food, and, I may add, time. I will add one more factor, too, that, I think, may be considered more important than any of the others, and this is the moral atmosphere of the patient, by which, I mean, his contentment and cheerfulness. Of course this is recognized by most tuberculosis men, but little is said about it. The chief fault of the usual method is the length of time required for the arrest of the disease—at least six months for the incipient cases and an indefinite period for the advanced ones, running into years. The results obtained by these methods are so very satisfactory as compared with the utter hopelessness of consumption fifty years ago that we are complacent with regard to the expense and dangers of prolonged invalidism.

My experience and interest in tuberculosis began about twelve years ago when I applied to tuberculosis methods I had been using in the treatment of some other diseases. The cases were few, but seemed so satisfactory that five years ago I established a small sanatorium for the treatment of tuberculosis by this method. Progress in development has been slow because I was doing general practice and also conducting another sanatorium and had little time to devote to the building up of this part of my work. Also because of the difficulty in getting cases I was obliged to take any kind of case, but I have not regretted this, because some of the most interesting results have been obtained in very advanced cases.

I am not proclaiming a cure for tuberculosis, but I am personally convinced that the method has the advantage of shortening the time necessary for early cases, and that advanced cases make more rapid advancement than by the usual sanatorium methods. I am not surprised that medical men, and particularly tuberculosis men, view with suspicion such remarks as the above; but I am not disconcerted, and my continued experience only strengthens my conviction that there is value in the method.

Until recently I have not found it advisable to modify the method in any way, but I have always realized that a fault lay in finishing up the case, and that I lacked a systematized and rational and safe method of getting the patient back into active life after he had improved sufficiently to feel that he did not require this treatment any longer. Indeed, another fault of the treatment was that the patient improved so rapidly that he acquired a false impression of his fitness and invariably wanted to leave before it was reasonable to believe that he should.

The method of Marcus Paterson, of Brampton Sanatorium, England, seemed to me to be admirably adapted to follow my intensive method, and for some time I have been trying to carry this out, as will be described later in this paper.

"Speaking broadly, we may say that most diseases are due to poisoning from pathologic bacteria, from faulty elimination of the toxins generated in the body tissues, or from defective blood or defective circulation, resulting in malnutrition of certain tissues or parts of the body. Obviously, then, to cure disease we should seek to improve elimination, to make better blood and more blood, to feed the tissues, to destroy the invading bacteria, to quickly remove bacterial and other toxic products, and to build up the body resistance."

Tolstoy wrote in his diary, in 1903, that it seemed to him that one of the errors in medicine was an excessive refinement of methods and apparatus, where mistakes are easily made. I do not wish to belittle these refinements, but at the same time I do not think physicians should lose sight of the elementary principles in the cause and treatment of disease.

The business of the blood is to feed the tissue cells and carry off the waste and toxic products to the avenues of elimination. We cannot be far off in the treatment of almost any chronic disease if we seek to foster these principles.

In the past fifteen years I have used in the treatment of various chronic diseases rest, hypernutrition and hyper-elimination. I have been well satisfied with the results and have since applied the same methods to the treatment of tuberculosis and have called it an *intensive treatment* of tuberculosis.

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*Presented before the Grand Forks District Medical Society at Grand Forks, N. D., July 12, 1922.

The method is simple, but not always easy. As used in tuberculosis it is as follows:

The initial period is eight weeks and is used in early and advanced cases alike. The patient is put to bed and, if running a temperature above 99°, is not allowed to get up to go to the bathroom, etc. If the temperature is below 99° and the pulse not unduly rapid, the patient is permitted to go to the bathroom, shave, etc. Outside of this he is obliged to remain quietly in bed, and the diet during this period consists exclusively of rich raw milk, which we obtain from an excellent private dairy. The milk is given warm every half hour to the amount of from three to eight or nine quarts a day. Besides this patients are given the juice of one or two oranges in the morning and a dish of prunes at bed time. Cathartic medicines are seldom used, but it is advisable to use enemas daily, although a few patients do not require them.

Milk contains all the elements necessary to a complete food. It is blood before it is milk. The cow's udder is not full of milk, but blood, which becomes changed into milk during the milking process. Osler speaks of milk as being nothing more or less than white blood. On this diet the blood condition of patients improves rapidly, improvement in color being apparent in a few days, particularly in anemic patients.

It is not true, as most physicians think, that milk makes soft fat and diminishes the patient's resistance. The muscles become harder, and measurements show increase in parts of the body where there is little fat, as in the region of the biceps, leg, neck, etc. The above criticism is often made, and tuberculosis men often say they do not like to see patients rapidly gaining in weight. For my part I have never seen tuberculous patients showing disappointment at gaining weight, and I have never seen patients gaining in weight while the disease was increasing.

There is some substance in milk, perhaps thyroxin, iodine, etc., that has some potent effect on metabolism. I have seen fat people losing weight at the same rate that thin people were gaining, both taking the same quantity of milk. It is common to see low blood pressures going up and high blood pressures going down in patients taking the same quantity of milk.

A person of average weight requires, while at rest, from 1,800 to 2,000 calories a day. Ordinary milk is rated at about 625 calories to the quart. The milk we use is very rich, testing between 5 and 6 per cent butterfat, and I have estimated it as being equal to at least 700 calories to the quart. The calorie value of food is known not to indicate the true value, because the vitamin value of food must now be considered. Milk is more abounding in all three of the vitamins than any other food and is certainly the most important food from the vitamin standpoint. When a reliable supply of raw milk is obtainable it is undoubtedly of greater value than pasteurized milk, although most everybody else holds to the contrary.

I believe that a diet of milk makes more and better blood than can be made by any other means. Besides this, the value of washing the body out with this large quantity of fluid must be great. The kidneys are stimulated, and the urine becomes bland and clear. Night sweats are uncommon in patients under this treatment, and hemorrhages are rare.

After a few days early and moderately advanced patients are given hot baths and hot packs producing a profuse sweating. The patients count this an important part of the treatment, saying they feel better after the baths, and once started in their use they are unwilling to go without them.

Because of the large fluid intake there can be no harm in losing a large amount of liquid by sweating, and there is no doubt that the skin is a valuable avenue for the elimination of waste products and toxins. Every physician knows that in uremia the patient can often be tided over the crisis by profuse sweating. Refrigeration is not the only or the principal function of the sweat glands, as some critics have said. At least the patients feel that it is a valuable part of the treatment, and I am of the same opinion.

At the end of the eight-week period all the patients are taken off the milk and put on a general diet. Early and moderately advanced cases will have had a normal temperature after the first or second week, as a rule. The cough is usually increased somewhat at first, but becomes softer and looser, and the amount of sputum is increased. At the end of the second or third week the amount of sputum decreases, and frequently there is little cough after this period.

In advanced cases the patients are kept on the solid diet from one to three weeks, when they are again put on the milk diet as before. After the first eight-week period on milk the time is usually somewhat shortened, depending upon the patient. Some patients tire of the milk sooner than others, but most all realize the difference in their progress while on milk and are anxious to go back on the milk diet. A few patients prefer to take the milk diet practically all the time.

On this regimen most all patients, except the obviously hopeless ones, will have gained rapidly, often in weight, sometimes over forty pounds in eight weeks. Their color and general condition will be greatly improved, and they will be free from fever and cough. Physical examination will show an improvement in the chest that has been in keeping with the general improvement. About this time most of the early cases will want to go home. I warn them that the time is too short, and if they insist on going it has been my habit to advise them as to diet, rest, graduated exercise, etc. Several of these patients served through the war after leaving the sanatorium, and none of these have had any relapse, and to my knowledge they are working at this time.

Recently I have adopted the auto-inoculation method of Marcus Paterson to finish up with, after a period on the intensive method. I have not yet had sufficient experience in this method to express an opinion, but, theoretically, the method seems excellent to me, and I feel that it is particularly adapted to use following my method. The method was first used by Paterson, in 1905.

I have given only a brief outline of the intensive method because I wish to devote more time to the auto-inoculation theory of Paterson, and I feel that the combined methods should give excellent results for reasons that I shall attempt to show later.

The method of Paterson is described in an admirable volume, published in 1911, under the title of "Auto-inoculation in Pulmonary Tuberculosis"; and in another volume, published in 1921, he asserts his continued confidence and good results in the method.

The method is based on the scientific regulation of auto-inoculation by graduated exercises. In tuberculosis, as in other bacterial disease, the question of "balance" is of supreme importance, and this may be defined as the ratio between the virulence of the invading micro-organism and the specific resisting power of the body to that particular organism. The greater the resistance that is actually present or that can be artificially produced, the sooner will a cure be effected. The more virulent the germ the greater the difficulty in dealing with its effects upon the body. The specific resistance can be increased until the toxic effect of the invading organism is no longer manifested.

We are all familiar with certain types of the disease in which the body seems soft and offers no natural resistance, although in the beginning the area involved may appear to be small. And we have all seen that other type in which there is great and widespread involvement, but in which the patient shows a leathery resistance and refuses to die. I recently had a Government patient who had tremendous involvement, and who, because he had been told that his case was hopeless, refused to follow any rules of treatment. He had repeated and copious hemorrhages during which he coughed up masses of broken-down tissue. After these severe hemorrhages he insisted on getting up and taking long walks. He ran away and took a long railway trip, and on his return he looked much better and appeared to be quite strong. He was discharged for disobedience, and he refused further sanatorium treatment and went to his home. I have since heard that he has greatly improved. Paterson asserts that his patients seldom have hemorrhages and that cavities are no contra-indication for the treatment, and that he prefers cavities to large caseous masses in the lung, that the patient is better off if he has succeeded in coughing up the caseous masses and having cavities instead. He places more reliance on the general condition of the patient than he does upon physical signs. He bases his opinion of the case upon the following:

1. The temperature.
2. The sputum (appearance and quality).
3. The patient's own feelings.
4. The appetite.
5. The weight.

His two main objects are, first, to raise the patient to his normal or highest known weight; second, to raise the patient's specific resisting power to such a degree that he can perform the hardest work without the danger of introducing a dose of bacterial products into the blood large enough to produce constitutional disturbance; and, third, to stop or greatly diminish the discharge of sputum. I am quite in agreement with him in this, and I feel that the first part of the treatment can best be accomplished by my method. The rapid increase in the weight in the form of firm muscular tissue, not fat, and the rapid improvement of the blood and the agents therein that produce the resistance are first essential. When this has been accomplished then the patient is better fitted for the final phase of the treatment—that of securing further resistance and enabling him to endure the stress of normal life without harm, and it seems to me that this can be best done by the method of Paterson.

The word *auto-inoculation* means the introduction of bacterial products into the blood. According to Wright bacterial organisms flourish wherever there is a diminution of antibodies. Auto-inoculations may follow or be induced "upon all active and passive movements which affect the focus of infection, and upon all vascular changes which activate the lymph stream in such a focus." It is by the agency of these auto-inoculations that the protective mechanism of the blood is set in motion, so that wherever bacterial products escape from localized foci and pass into the circulation, intoxication phenomena and immunizing responses must necessarily supervene. When this immunizing response is adequate to withstand the attack, nature effects a cure; when it is inadequate and auto-inoculations continue unchecked, the inevitable end is death. No one recovers from any bacterial disease unless it be by the production of protective substances in his organism.

It is the balance of these two opposing forces that constitutes what is known as resisting power. If the auto-inoculation is excessive it is shown by fever, loss of appetite, loss of weight, and the well-known symptoms of intoxication. When this occurs Paterson advocates the control of the excessive auto-inoculation by means of complete immobilization, which I shall describe later.

When the temperature is below 99° and there are practically no symptoms of excessive auto-inoculation, he induces auto-inoculation by graduated exercises. His purpose is to throw just enough of the toxins into the blood stream to create a reaction and stimulate the antibodies. If the reaction is excessive as will be shown by a rise in temperature above 99°, with loss of appetite, etc., the patient is immobilized and the process started over again on another day. It is this danger of excessive auto-inoculation that necessitates the careful and scientific management of the graduated exercises.

Irregular fever in pulmonary tuberculosis is always associated with irregular inoculations of bacterial products. To control the disease it is necessary to bring the temperature to normal, and, according to Paterson, this can best be done by enforcing complete immobilization. In his system patients who have a temperature of 99° or over and constitutional symptoms, are sent to bed and not allowed to move in bed, to read, to wash themselves, or to cut up their food, or go to the lavatory. They are advised to talk as little as possible and to prevent unnecessary coughing as much as possible, that is, coughing that is not productive of sputum. If the cough is excessively irritable it should be controlled, and Paterson recommends the inhalation of a mixture of oil of creosote, spirits of menthol, 20 per cent, and spirits of chloroform, equal parts. The relief of an irritable cough facilitates the control of auto-inoculation and helps to restore the patient's balance.

Visitors should be prohibited, and the patient should be protected as much as possible from any mental worry.

After the temperature has remained below 99°, and symptoms of intoxication have abated, the exercises are begun. The objects in view are to induce auto-inoculation by increasing the motivity of the lungs and to restore the patient's physical capacity. This may be accomplished by systematized labor. The system in use at the Brompton Sanatorium consists of a preliminary period of exercise by walking and six grades of labor.

The following is a table of work for men, that given for women being modified somewhat:

Course of treatment	Period	Work performed
Walking	One to four weeks. Resting when not walking.	Beginning at half a mile a day = 1 round. "Rounds" refers to the distance traveled both morning and afternoon, that is, 1 "round" = 1 mile, 2 "rounds" = 2 miles. Rising to 1, 2, 4 and 6 miles a day = 2, 4, 8 and 12 "rounds" a day. Half the number of "rounds" to be completed in the morning and the other half in the afternoon.
Graduated labor: Grade 1	One week. 9:55 A.M. to 11:50 A.M.; 2:30 P.M. to 4:50 P.M.; rest 12 to 12:45 P.M.	Small Baskets.—A weight of about 10 lb. is carried a distance of about 50 yds.; total weight carried, about 8½ cwt.; distance traveled to and fro, about 7 miles. Equivalent work: light weeding, plotting, pricking out seedlings, picking off dead flowers, watering plants (using 1-gallon can), etc., painting with "sash tool."

Grade 2	One week. Times, same as above.	Large Baskets.—A weight of about 18 lb. is carried a distance of about 50 yds.; total weight carried, about 15 cwt.; distance traveled to and fro, about 7 miles. Equivalent work: weeding with hand fork, planting out in open ground, cutting vegetables, watering plants with two 1-gallon cans, or one 2-gallon can, etc.
Grade 3	One week. Times, same as above.	Sweeping paths and grass, cutting grass edges, chopping firewood, hoeing, painting with large brush, cleaning windows, etc.
Grade 4	Two weeks. Times, same as above.	Using a small shovel or digging with a small fork. Five men can pull hand-cart containing soil or stones. Mowing grass, three men to 16-in. mower. Two tons of earth can be raised seven feet in this grade. Three men to a roller weighing 4¾ cwt. Using mortise chisel and tenon saw, etc.
Grade 5	Three weeks. Times, same as above.	Using large shovel and pick; digging with large fork. Pulling down trees and trenching ground 3 feet deep, hauling stones, etc., in cart, using wheelbarrow, doing general heavy navvy work. Six tons of earth can be raised seven feet, or ten tons of concrete mixed. Sawing. Planing.
Grade 6	Three weeks. 10 A.M to 12:45 P.M.; 2:30 P.M. to 4:50 P.M. "Off Rest"	Work similar to Grade 5, except that rest from 12-12:45 is omitted.

Patients who have been in bed with fever start by walking one-half mile a day, resting the remainder of the day. If the patient exhibits no symptoms of intoxication, the distance is increased at the end of a week to a mile a day, and conditions being satisfactory the distance is increased to two miles a day and again to four. Patients on the four-mile grade and over and those on any of the labor grades also have to do small chores, such as sweeping, making beds, etc. The final walking grade is six miles. If a patient on any of the grades shows any marked signs of intoxication, he is either obliged to rest, as stated, or continued on the same grade until the symptoms are abated.

Paterson states that the patients on this system feel better after slight auto-inoculations and that they are apt to become over-enthusiastic and need control. He warns repeatedly against leaving the regulation to the patient.

My experience with this method has been only with advanced cases, and so far I have had no patients beyond the walking grade. Considerable improvement has been noted, and the patients like the treatment and are greatly interested. It serves the useful purpose of breaking the deadly monotony of sanatorium life and gives the patient a new interest and something to be accomplished and looked forward to.

THE
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Represents the Medical Profession of
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The Official Journal of the
North Dakota and South Dakota State Medical Associations

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PSYCHOTHERAPY

The last book on autosuggestion is one written by Emile Coué, and on the title page is a quotation from I Corinthians ii, 2, as follows: "For what man knoweth the things of a man save the spirit of the man which is in him?" The quotation would make one at once sit up and take notice, for it requires a legal as well as a trained scientific mind to interpret this verse. And it might be applied equally well to psychotherapy, Christian Science, laying on of hands, or a church clinician.

However, M. Coué has started something, and it would be interesting to watch, as it has already been noted, the fact that the author lives in Nancy, France, the home of the hypnotist, and evidently the simmering place of the pseudo-psychiatric psychologist. Coué, however, has many followers in France, and, as is quite natural, the women are his strong adherents. The fame of his book and his method have spread to the east in the United States and people are stumbling over one another in their efforts to join the suggestive therapeutic parade. Perhaps the thing that popularized the book and its author is the little slogan he has perpetuated, and which may be used by anyone who indulges in any kind of suggestive therapeutics: "Day by day in every way I am getting better and better." Now, that is a very cheerful epigram and the idea of Coué is that the patient is to repeat this over and over and over again until nothing else is left in his mind. He has no other thought but that he is getting better, and, apparently, its limitations in treatment are boundless, for in "Tonics and Sedatives" in the *Journal of the American Medical Association* there is recited the story of the man who had bowlegs and went to a healer with a doubting heart that such a condition could be cured. He was assured that it could be, and in the evening when he began the repetition of this slogan he forgot how many times Coué told him to repeat it. He knew there was a 50 and a 100 in it somewhere, so he decided to do it up brown and repeated it 350 times; the result was that when he came back to the clinic he was knock-kneed! This, of course, is carrying it a bit too far or is poking a little gentle fun at the conditions which may be relieved.

Mr. Brooks, who translates this book, shows us briefly our own inevitable practice of unconscious autosuggestion at all the small crises of every-day life. Sometimes reaction to emotion, as trembling, the result of fear; blushing, of self-consciousness; sickening and fainting, of disgust at the sight of blood, are the involuntary physical manifestations produced by the subconsciousness as a result of emotional thought.

Works of this kind are not infrequently very beneficial to nervous people; others, however, do not react in the proper way. They sometimes are more impressed by their fears than they were before they read anything on this subject, of which they know practically nothing. How many people know what the mind really is? And how many people know what the so-called subconscious mind is, and what its functions are? and fewer even dare to guess at what the unconscious mind means. Yet, they are separated and isolated and may be used by a certain class of psychologists much to the confusion and despair of the average simple-minded individual.

This book is really another method of studying the patient from a psycho-analytic point of view, or rather of the patient studying himself from that point of view, but all these methods which carry autosuggestion in their wake must be carried out under proper supervision.

It is rather amusing sometimes to hear the lay people who read things on this order express themselves without the faintest idea of either what they are thinking or saying; and, yet, it can all be put down in simple, understandable language.

It is the mystery which surrounds Christian Science that has more to do with its adoption than its clearness. It is not clear at all; it is muddy, and is simply swallowed whole, as is an oyster, without mastication, deglutition, or digestion. The same thing applies to the reading of the average paper or book on psycho-analysis. It leaves one despairing, unhappy sometimes, and with many more undeveloped ideas than one ever had before. Then, too, it develops sometimes fears that have never been considered. However, the reading of Coué's book is a safe proposition.

For instance, there is a chapter in Coué's book, "How to Deal with Pain." It starts out very sensibly. Instead of following the Christian Science idea of continually repeating the words, "I have no pain," the sufferer is told that by so doing he constantly renews that thought in his mind. The result is that his mind oscillates between "I have no pain," "I have some pain," and "I have a bad pain." However, M. Coué insists that even this pain can be relieved by repeating the assertion "No pain" so rapidly and so persistently that eventually the thought of no pain remains. The shorter the number of words and the greater the rapidity with which they are repeated the better; and the suggestion is made that "it's going" or simply the word "going" should be used, and the treatment should conclude with the word "gone." This, of course, will apply to some minor states in which the mental process is really the painful region, but it is difficult to assume that a man can coerce his "no pain" idea when he has an abscessed tooth that has infected the surrounding tissues and is causing intense pain, and, yet, many instances have been recorded in which even men and boys, on going to the dentist to have a tooth extracted, find that the pain has ceased when they turn the handle of the door. If you succeed in convincing your unconscious mind that your pain has gone, Coué says that you hang a sign "No admittance" over your unconscious mind.

Of course, a part of this dealing with pain processes includes the laying down and relaxing of body and mind, and the ceasing of all effort and the repeating of the formula. It is just like treating a case of insomnia by telling the patient to say "sleep" to himself two or three hundred times; and that recalls the instance of the man who used the old counting method when he told his friend next day that he counted up to 180,000, and the friend said, "Then you went to sleep," and he said, "No, then it was time to get up."

A good many of the suggestions or explanations and particulars are more or less puerile, and many of his clinical reports are extraordinarily commonplace and show that some of the things are carried to extremes. The usual number of letters that are written by patients are full of just such deceptive yarns. Among them is one who claims to have followed Coué's processes for several months and freed himself from a terrible state of neurasthenia, which was the despair of his three doctors. Another patient was one who himself cured a rheumatic shoulder and knee in a short time and proceeded to take off his spectacles, which he had worn for more than thirty years, and in a short time he had gained perceptibly in his visual field. A third case is one of a woman who had a prolapse of the uterus, and she used Coué's method for five months and was completely cured; but all these must be taken with a grain of salt. The book may be read by some people with a great deal of benefit and by others with a considerable degree of entertainment.

It is simply another method of autohypnotism carried on by a man of force, who is a good advertiser and has a splendid press agent.

We quote *The New York Times Book Review and Magazine* of August 22. "Somebody has been spoofing Dodd, Mead & Co., publishers of Emile Coué's 'The Practice of Autosuggestion.' A recent order for a copy of this book ended with the following postscript: 'My daughter has a case of autosuggestion, and I fear it will cost me the price of a Ford.' "

THE OUTLOOK FOR PROBLEMS ON THE WAY

It would seem almost justifiable to open this editorial with the well-known verse, "The melancholy days have come, the saddest of the year," but, feeling in a more jocular mood, we are not going to anticipate any more troubles than we can help, consequently the rest of the verse is left unsaid.

The first thing that occurs to the editor is that the medical societies will begin their meetings within a few days, and although many of us will hesitate about going to the first meeting, we should rise in our dignity and attend loyally and in large numbers. The men in the city will be more apt to do this than the men in the country, but both are under obligations to join with the forces of medicine to make the medical society a benefit to themselves and their fellowmen, and this can be done only when a man is an enthusiastic attendant.

It may put one out to some extent to go, but it is our plain professional duty not to shirk a medical responsibility, especially one that is of the highest order. It is perhaps not necessary to remind our readers that the business of medicine is not very good just now, and it has not been good for some time, but the business of acquiring information and imparting information is still going on, and nothing should stop it. Simply because a man has less to do should not in any way release him from keeping his mind active, his thirst for new things satisfied, and his encouragement to others to do their duty equally well aroused.

Consequently, the old slogan of "Join and attend your society meetings" should be the attitude of every medical man.

Naturally, we are all beset by the troubles that are going on about us, and now a new issue comes up, but it arises out of the ashes of an old one. This month in Portland, Oregon, there is a meeting of the dignitaries of the Episcopal Church, and they will thresh out again, as they did once before, the question of church healing clinics. Mr. Hixon, of England, who came to Minneapolis a year ago or more, has left his impression, and he has some supporters among the dignitaries of the church, but he also has some objectors, and they are promising to make the meeting in Portland quite spirited.

The seeming fear is that it is necessary to create clinics in the church in order to prevent their followers from being deflected to Christian Science. This, from a medical man's point of view, is sheer absurdity. Anyone who wants to be deflected from one church to another ought to be permitted to deflect rather than attempt to hold him by any coercive measures or spectacular departures. This brings up the question of whether the bringing together of the doctors and the ministers in closer co-operation in the treatment of the sick is advisable. We think that, under many circumstances, it is; that very often a patient is extremely ill and needs both the services of the doctor and the minister. From past experience it is to be found that the doctor is the one that the patient needs the most and depends on at the crisis; many sick people insist that their doctor be with them when they are nearing death.

On the other hand, there is a class of people on whom the minister and the doctor cannot co-operate very closely, and that is in the treatment of mental and nervous diseases. When it is necessary to isolate a patient the doctor should have supreme command and the minister should not in any way interfere unless called upon by the physician. This is only one problem which we think of at the present time which will create a diversity of opinion at Portland, and it will be interesting to follow the outcome of the meeting.

The other, and perhaps the more important problem, is the one of the present anxiety and instability of the people of the United States. They are torn asunder as to what to believe and what to do. There are arguments from all sides about labor and capital. The disorder has prevailed for months now. The activity of the so-called striking element and the optimism of those who are prompted by the efforts of capital and industry is in great contrast, and there are many who are one-sided in their views for or against, but the masses are in trouble. It means the loss of enormous sums of money which are now needed for circulation purposes. It means unhappiness and distress, and sometimes it reaches a point of madness, and then it becomes a disease. And a disease which covers such large territories as we possess is a malignant thing.

The politicians are apparently unable to subdue or organize these forces, or to bring them together on any substantial ground. The result is that not only is there suffering among the laboring classes, but the anxiety of the public is increasing by such rapid movements that unless we are extremely cautious and moderate in our expressions the whole country will be aflame with indignation, terror, and perhaps horror!

But, these are only symptoms of mental disorders which, unfortunately, cannot be cured by the psychiatrist even though they are followed by disturbances of metabolism. This is no case for the internist; the specialist who should undertake the cure of this widespread disease should be a man powerful in his psychology, with a remedy to submit for inspection and experimentation. He should be given enormous powers, and for the time being at least both capital and labor should be subjected to his orders, and they should be carried out until his diagnosis or his treatment has cured or failed.

Instead of giving these disturbers a political dose of castor oil they should have something much more scientific. What both of these factors need is a heroic dose of bromide of soda to quiet their nervous activities, so that they can reason with one another calmly and deliberately under the guidance of this one man who would tell them what their reasoning should be like.

THE ANNUAL MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

The meeting of the State Medical Association, on October 13 and 14, is preceded on the 12th by a meeting of the House of Delegates, and it is quite necessary that there be a full attendance at both the House of Delegates and the general meetings of the Association.

The business of the Association has grown to such dimensions and the necessity for spurring it up to do better work and to continue to maintain its friendly rivalry with the Southern Minnesota Medical Association are manifest. The latter society has grown to be a large factor in our state medical work owing to the activity of its officers, and particularly to its secretary, who has been so keen to have every meeting a successful one. The result is that the State Medical Association officers feel that their task is a large one this year and that they must have the cooperation of all the men who are members of the society. At present there are approximately 1,650 members; of course, this is greatly in excess of the membership of the Southern Minnesota Medical Association, and for that reason we should have a very much larger attendance than they ever had.

Notwithstanding the sacrifice that it means in travel or in the temporary absence from practice, it is eminently desirable that every man who can possibly get away should do so. There has been more or less dissatisfaction and some agitation among certain groups of men as to the distribution of offices of the society. It may be that some man away from any of the larger cities may be chosen president, in order to bring out and encourage men outside the larger medical centers and to let them understand what it means to be the executive officer of an organization as large as our state society. By way of explanation, it may be said that it requires a great deal of time, a large amount of correspondence, and the necessity of keeping closely in touch with the men who create the program and who ultimately select the highest grade medical literature offered. THE JOURNAL-LANCET would like very much to see a representative man from some of the smaller towns chosen as the president for 1923.

It is fully understood, however, that the meeting-place of the Association should be in some city large enough to take care of those who expect to attend. Going to a small place with inadequate hotel accommodations or meeting-places, as has been proven many times, is not to be thought of. Hence, the discrimination should be in favor of the selection of officers rather than in the selection of a meeting-place. This year the headquarters of the Association will be at the University, and Millard Hall is to be the meeting-place of all sections. This building affords ample room and is accessible from both St. Paul and Minneapolis, and equally convenient to the men who come from out of town. This eliminates the necessity of meeting in churches and inadequately appointed halls. It will also furnish ample space for the exhibits, which are more or less of an institution in a society meeting. Then, too, in the immediate vicinity of the meeting-place there is the University Hospital; but the clinics are not all to be held there. Clinics will be held in the larger hospitals on the west bank of the river.

The meeting, so far as amusements and the program are concerned, is a highly acceptable one. Some of the men and perhaps some of their wives will look forward to the entertainment to be provided. This will not be neglected, neither will it be stressed in any large degree. We may all expect the usual banquet with the usual entertainment, which is more or less burdensome, but to be endured. Then there is the question of golf. The various Twin City clubs will permit the playing of golf on their club grounds, and doubtless a few men who claim to be medical men will spend their time in studying the symptoms of "golfitis."

In spite of the fact that there is plenty of hotel room in Minneapolis THE JOURNAL-LANCET urges all the men who intend to be present to make their reservations early. This can be done by writing Dr. E. L. Gardner, 730 LaSalle, Building, Minneapolis, but those who wish to make reservations through the hotels direct should do so.

THE ANNUAL MEETING OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY IN MINNEAPOLIS

Because some official of the Academy slept at the switch we fear the light of publicity has not been turned on the value and importance of the meeting named above to occur in Minneapolis five days of next week, September 19 to 23, inclusive.

The Academy is the largest organization of its kind in the world, its membership now being over 1,500. Its doors are open to all men doing eye, ear, nose, and throat work, provided they are doing such high-grade work as the character of their specialty and the needs of the public demand. The Academy is not exclusive in any respect except in its standard of excellence of the work that must be done by applicants for membership.

There is one unique feature of the annual meetings that has attracted world-wide attention. It is a "Section on Instruction," an elaborate program of which has been issued. The course covers three days of intensive study under twenty-six instructors, all men eminent in their work. A fee of $10.00 is charged to pay the expenses of the course. The names of only two Northwestern men appear among the instructors—Dr William R. Murray, of Minneapolis; and Dr. John H. Stokes of Rochester, Minn.

Among the instructors is Prof. Robert Barany, now of Upsala, Sweden, but formerly of Vienna, Austria. Professor Barany will remain in the city after the meeting for two weeks, and give a course of instruction.

Professor Barany was the recipient of a Nobel prize some years ago for his original work on disease of the ear.

The general program consists of thirty-five papers, four of which are by Northwestern men,—namely: Dr. J. H. Rindlaub, Fargo, N. D.; Dr. W. L. Benedict and Dr. H. R. Lyon, Rochester, Minn., and Dr. J. A. Watson, Minneapolis.

The Academy comes to the Twin Cities largely because of the reputation of our medical men gained when they entertained the members of the American Medical Association, when the Association met here; and the members of the Minnesota Academy of Ophthalmology and Oto-Laryngology cordially invite all medical men of Minneapolis and St. Paul to help sustain this reputation. The American Academy comes to the Northwest as the special guests of the Twin Cities.

The entertainment for the visiting members of the Academy and their wives includes a drive to Minnetonka, a banquet at the Radisson Inn, and a smoker at the St. Paul Hotel.

CORRESPONDENCE

POTTERITES

To the Editor:

I was interested in reading your editorial on Potterism in your issue of August 15. It seems to me that the great majority of doctors are Potterites, and swallow whatever is the fashion in medicine at the time. You and I, who have lived for a century or more, know, if we stop to think, how many theories have come and gone that were, at the time, thought the last word, and how many fool methods of treatments based on those theories have come and gone. One refusing to follow the crowd was looked upon as a back number. Such things show poor medical logic.

Sir Gilbert Blane, who wrote a book over a hundred years ago, on "Elements of Medical Logic," says: "Theories have often to bend in order to do homage to truth and experience"—and it is just as true now as then. The smart Alecs who write the medical column in our lay papers, and speak like Sir Oracle, seem ridiculous. The present craze for publicity, if the people have long memories, will make the medical profession ridiculous; for, if the world goes on as it has, those who follow us will smile at our mistakes and talk of the credulity of doctors—and so it goes.

Yours sincerely,

A Back Number.

BOOK NOTICES

Psychoanalysis: Its Theories and Practical Application. By A. A. Brill, Ph.B., M.D., Lecturer on Psychoanalysis and Abnormal Psychology, New York University, etc. Third Edition, thoroughly revised. Octavo of 468 pages. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $5.00 net.

For a long time the numerous problems intimately connected with sex were treated by the medical profession with scorn or derision, or turned away from with disgust. But their claims upon the attention could not be denied and there has been a gradual increase in the interest in them on the part of the general practitioner as well as of the specialist in neurology. Nothing could be more narrow-minded or short-sighted than the attitude of a prominent alienist of the old school, referred to in this book, who was consulted by a victim of homosexualism. With great difficulty the patient forced himself to tell about his inversion. When the doctor finally understood the condition he cried out contemptuously, "What a disgusting disease to have!" This put an end to the consultation, for which the doctor did not neglect to charge a fee of $25.

Now, whatever the nature of the bodily or mental disease he encounters, the physician should steel himself against meeting it with any feeling of disgust. There should be no limit to the doctor's sympathy for his patient, and that need in no way interfere with a strictly scientific attitude toward the case, but the less there is of sentiment, and particularly of sentimentality in his feelings, the better service the doctor will give to his patient.

He who would profit by a book like this must read it with a heart full of sympathy for the unfortunate and a mind free from prejudice. To such a one it will be full of instruction, and while it is doubtful if the average man can make many practical applications of the method of psychoanalysis which the author uses successfully, at least he will be able to avoid mistakes in handling this particular class of cases, and can abstain from giving wrong advice. There is no more difficult problem than that presented by the various forms of sexual aberration, and the conscientious physician who is consulted by one of these unfortunates will be lucky if he can base his advice on knowledge obtained from a work like that of Dr. Brill.

—W. Davis, M.D.

Infant Feeding. By Clifford G. Grulee, A.M., M.D., LL.D., Associate Professor and Acting Head of the Department of Pediatrics at Rush Medical College, etc. Fourth Edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1922.

The statistics of the whole country show that 25 per cent of deaths occur before the age of one year. An analysis of the causes of death among these infants makes it fair to attribute 60 per cent of the mortality to disturbance of nutrition. That is to say that out of every one hundred deaths in the registration area of the United States, in fifteen faulty nutrition is to blame, and as the greater part of this faulty nutrition is due to improper feeding, the diet during the first year becomes a matter of the highest importance.

High as this death rate is, it must be small compared with that of thirty-five years ago, when during the months of July and August of each year the diarrheal diseases of infancy, chiefly reported as "cholera infantum," led the death returns of cities by a large majority, and the general practitioner found these the busiest months of the year, spending most of his time "skirmishing among the green and yellow stools of infancy," as it was once graphically described. The practical disappearance of cholera infantum from medical nomenclature and the tremendous drop in the mortality from the diarrheal diseases has been brought about by no decided improvement in medicinal treatment, but by the great advance in the methods of infant feeding of which the present work treats.

All agree that today, as always since the creation, the one best food for the infant is breast milk. It follows that the hygiene of the mother is a matter for careful consideration. Probably more harm comes on the whole from over-feeding than from under-feeding. Grulee advises from 2,400 to 2,900 calories a day for the nursing mother. He assigns to psychic influences the chief cause of disturbances in the quality of the breast milk. Menstruation disturbs the milk temporarily, but pregnancy, often considered a most serious disturbance, he lays little stress upon, considering its influence at first only a psychological one. Gradual weaning when the baby is nine months old is advised, and nursing during the fever stage of infectious diseases and in the presence of active tuberculosis and insanity is positively forbidden.

The scientific study of the dietetics of infancy requires a considerable knowledge of biological chemistry. The practical work of feeding the infant calls for no small acquaintance with the art of cookery. The successful specialist in pediatrics must know both those subjects. He will read this book understandingly and appreciate it. But he is not the only one who will find it useful. The general practitioner will find in it many useful points and much addition to his general knowledge of infant feeding. A valuable table summarizing the feeding of healthy children is that on page 203. Sound advice is given about the introduction of soups, vegetables, cereals, bread and crackers into the diet as the child grows older. Those will find this advice particularly appealing who think that the fashion of beginning early to give the healthy infant a variety of foods has been carried to absurd lengths and that it is time to call a halt.

—W. Davis, M.D.

NEWS ITEMS

Dr. J. T. Bow~~n~~ers, of Lake City, has moved to River Falls, Wis.

Dr. G. H. Schlesselman, of Taylor, ~~Minn~~ Wis., has moved to Mankato. Minn

Dr. T. S. Kammerling has moved from Spencer, S. D., to Sioux Falls, S. D.

Dr. J. R. McNutt, of Two Harbors, was married last month to Miss Elsie Gerlach of Barnum.

The contract for the Canova (S. D.) Clinic building has been let, and work has been begun on the building.

Dr. A. S. Hoiland, also formerly practise at Argyle, is now located in Minneapolis, and offices in the Masonic Temple.

It is announced that Dr. Kretzschmar, of Munich, Germany, will join the staff of the Red Wing Clinic about November 1.

Dr. Ira A. Leighton, of Boulder, Mont., is a candidate for the Montana State Senate, of which he has been a member in the past.

The sale of St. James Hospital, at St. James, to the Sisters of St. Francis at Rochester, has been closed. The price paid is said to be $30,000.

Ihlen, Minn., in order to get a doctor subscribe, through 200 citizens ($12.00 each), $2,400 to include a South Dakota physician to locate there.

At the St. Paul City Hospital during the month of August, 565 patients received treatment; and there were 87 births and 50 deaths in the hospital.

The Trinity Hospital Association of Minot, N. D., has begun work on the main building and the West unit of the new hospital the Association is to build.

Dr. B. F. Simon, Chief Health Officer of St. Paul, favors a substantial breakfast for people of of sedentary habits as against the light breakfast eaten by many.

Dr. T. C. Davis, of Glenwood, has moved to Wadena, and becomes a member of the firm of Drs. Davis & Davis, a member of which firm died three years ago.

Dr. Minas Joannides, who recently moved to Minneapolis from St. Louis, Mo., has offices at 1253 E. Lake Street. He joined the Hennepin County Medical Society last month.

Baby clinics are becoming almost a fad. County nurses, pediatrists and general practitioners are holding such clinics in the cities, villages, and county cross-roads of the Northwest.

Dr. R. W. Pence, of Minot, N. D., has been elected a member of the Minot Association of Commerce. It is always pleasant to hear of a doctor becoming a commercial entity.

Special attention is called to the annual meeting next week, in Minneapolis, of the American Academy of Ophthalmology and Oto-Laryngology mentioned at length in our editorial columns.

Dr. C. R. Sandborn, of Bemidji, has sold his practice to Dr. B. J. Martin, who has been associated with him for several months. Dr. Sandborn will take a postgraduate course and locate elsewhere.

Dr. J. P. Caldwell, a retired physician living in St. Paul, died last week at the age of 74. Dr. Caldwell came to Minnesota forty years ago and practiced in Lakeville, Princeton, Farmington and St. Paul.

Dr. A. B. Ancker has begun his 40th consecutive year of service as superintendent of the City and County Hospital of St. Paul, and each of the past years has been one of service of increased value to the public.

Dr. A. F. Kilbourne, superintendent of the Rochester (Minn.) State Hospital for Insane, recommends, in his recent biennial report, that a state guardian be appointed to handle the estates of wards of the State.

St. Anthony Hospital of Bemidji, which has been under the management of the Sisters of St. Benedict for the past twenty years, has been sold to the Northern Minnesota Lutheran Hospital Association, which has taken possession of the hospital.

The Sanford-Dummer Clinic, of Farmington, has abandoned the idea of having the city issue bonds for a new hospital building, and, with the assistance of the Commercial Club of the city, will sell hospital bonds to raise $40,000 for a building.

The new six-story wing of St. Mary's Hospital building at Duluth was opened the last days of August with appropriate ceremonies conducted by Bishop John T. McNicholas. Its cost was about $300,000. It gives the hospital a capacity of 400 patients.

Dr. Charles E. Nixon, assistant for the past three years to Dr. A. S. Hamilton, of Minneapolis, has moved to San Francisco, where he will engage in the practice of neurology and also be connected with the Medical Department of the University of California.

Dr. Alberta F. M. Greene has resigned from her position in the State Hospital at Fergus Falls to accept the position as assistant superintendent of the Massachusetts State Reformatory for Women at Bedford, Mass.

The Central Minnesota Medical Association held its annual summer meeting in Maplewood last month. Papers were presented by Dr. E. H. Frost, of Willmar; Dr Emil S. Geist, of Minneapols; Dr. J. B. Branton, of Willmar; Dr. A. A. Wohlrabe, of Minneapolis; and Dr. J. C. Jacobs, of Willmar.

Dr. Robert Olesen, of the U. S. Public Health Service, now working with the North Dakota Health Officer, told the Grand Forks (N. D.) Lions' Club, in a recent address before the Club, that North Dakota spends a smaller amount on its State Board of Health than any other state or territory.

The Hennepin County Medical Society renewed its monthly meetings on September 4. Seven new members were admitted, and eighteen applications for membership were received, to be voted upon at the next meeting. Drs. Kenneth H. Phelps, Earl Hare and C. B. Wright presented papers and case-reports.

Dr. C. D. Powell, of Valier, Montana, is a candidate for the state legislature, with the following qualifications, inherited and acquired: He comes from Illinois and is one of five doctors produced by his family; he practices medicine; he is treasurer of a company that farms 1,100 acres of land; and he owns and farms 480 acres of land.

The Minnesota State Registered Nurses' Association of the second district held a largely attended convention at Virginia last month. Miss Anna Jones, of the University of Minnesota, gave an address on the public health nursing course at the University, which was the first school of nursing established in this country as a university department.

The death rate among babies in Minneapolis has gradually fallen since the work of the Infant Welfare Society began to receive money from the Community Fund. Last year the rate in the city was 55 per 1,000 births. This rate puts Minneapolis in fourth place among cities over 100,000. Pittsburgh ranks lowest with a death rate of 96 per 1,000 births. Portland, Oregon, is highest with a death rate of over 48.

YOUNG PHYSICIAN WANTED

One who has had hospital experience is wanted for salaried position in a small town in South Dakota on coast line of Milwaukee Railway. Address 284, care of this office.

PRACTICE FOR SALE IN MINNESOTA

A practice in a Minnesota village of 600, in a rich section of the state. Competition 15, 18, and 22 miles distant. Territory has averaged $5,000 to $8,000. Collections good. Practice and residence and office combined are offered at a bargain. Address 283, care of this office.

UNOPPOSED PRACTICE FOR SALE

In a town of 500 in Southern Minnesota. Collections good; roads good; will sell practice and office equipment for the price of the equipment. Good reason for selling. Address 271, care of this office.

POSITION IN DOCTOR'S OR DENTIST'S OFFICE WANTED

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THE ENDOCRINES IN NEUROLOGY AND PSYCHIATRY*

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FARGO, NORTH DAKOTA

The chemical conditions which are in constant operation within a man's body—and these chemical factors include the glands of internal secretion—are the rounds of the ladder by which he may climb to heights as yet unknown in the development of a physical perfection that could not have been obtained through any other source.

The thyroid, pituitary, adrenal, thymus, pineal, and sex glands are revealing more secrets relative to this ultimate result than was thought possible a few years ago. The life of every individual, normal or abnormal, is dominated largely by his internal secretions.

Originally, a gland meant a something within the body that was seen to produce a substance, generally a juice or liquid mixture, of a variety that was useful in the body economy, such as the salivary glands and their production of saliva. The microscope has shown that every gland is a chemical factory, in which every cell is a worker. The sweat glands of the skin furnish sweat as an end-result of their labors, the lachrymal glands produce tears as theirs; and the collectivism of their management is the only essential difference between them and any modern chemical laboratory, whether it is for the manufacture of soap or a high explosive.

It was found on investigation that there was a decided resemblance between the cells of the glands above mentioned and the cells of the more mysterious glandular structures; such as the thyroid, adrenals, pituitary, and others, the functions of which were then unknown.

What had previously prevented a classification of these structures as glands was the fact that they seemed to possess no discernible passages for the removal of their secretions. It was shown, however, that these glands were possessed of an exceedingly rich blood supply; therefore it was conceived and demonstrated that the blood was undoubtedly the medium by which the egress of the secretions was accomplished.

If we delve into the evolutionary history of early forms of life, we will find that the thyroid was originally a sex gland, and is considered by many today in gynecologic and neurologic lines as a secondary ovary. We know today that the thyroid gland is the controller, through its secretion, of the speed of living. It controls the pressure of energy in the cells of the body, as well as the mobility of that energy, and without it rapid fluctuation of energy and flexibility of energy mobilization for any sudden act become impossible.

While the thyroid makes available a greater supply of crude energy, speeding up cellular processes, the pituitary assists in energy-transformation, expenditure, and conversion, especially of the brain and of the sexual system. In short, the thyroid facilitates energy-production, and the pituitary its consumption. The pituitary, then, stands as the gland of continued effort. Hence fatigability, an inability to maintain effort, is prominently in evidence when any insufficiency or destruction takes place in the secretion of the pituitary. The adrenal glands stand as the glands of emergency energy, the glands of combat, the glands of preparedness, ready at all times to meet and combat toxic elements introduced into the system, from whatever source, and to restore muscular tone after effort. In like manner one might go through the whole list of glands regulating our bodies, and find each gland performing functions peculiar to the demands made by the bodily economy on it as an individual unit of a most wonderful mechanism.

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*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

Until quite recently, these glands were treated from the standpoint of therapy, and, if a deficiency was evidenced in their production of individual secretion, they were treated as one might treat a sore finger or a boil on the neck, and little was it realized then that they were as so many separate laboratories from which were produced the chemical substances which would eventually determine the mental and physical status of the individual.

The new attitude toward these glands, while it is bound to revolutionize some of our previous ideas of treatment in specific cases, will not in any manner, as some seem inclined to think, render our materia medica, surgery, and former procedure as practitioners unnecessary; but the internal secretions and the glands that produce them are the most helpful and promising of the reagents that have recently come forward to supplement our former knowledge; and they open up a limitless prospect for improvement in the treatment of our patients. Even if we are on the first rung of the ladder, we are on the ladder, and there is no doubt there will be those who will climb it to the topmost round; and, if it is possible for a single gland to dominate the life history of a patient, may it not become possible, by studying endocrine traits of physique, life reactions, disease tendencies, hereditary history, and blood chemistry, to gain an insight into the constitution of an individual? And by supplying the secretion where there is glandular insufficiency, or inhibiting the oversecretion in other cases, to materially overcome abnormal manifestations?

What transfigures the individual, as the years go by, is no simple wear and tear of the tissues, nor the replacement of old cells by new. It is the rearrangement of the relationships among the ductless glands, the shifting of influences from the predominant to the subordinate, and vice versa, in the association of the glands one with another, that determines the unfolding of the personality.

Seeming miracles of transformation of personality have been effected by the administration of glandular substances. These transformations raise doubt sometimes as to the reality of personal identity, because of the radical change thus produced. The internal secretions, indeed, appear to be the key to the soul of man,—the chemistry of his deportment, the basis of the great destiny in store for him in his future life.

It has been argued, and still is, that the process of evolution has ceased, when in truth we are on the threshold of a fresh stage of evolution much more tremendous in what it signifies than anything we have been permitted to know in the past, and its possibilities seem to be endless.

What actually happens in the changes from childhood to adolescence, from adolescence to maturity, and from maturity to senility, is the sloughing of one internal glandular dominance for another; and similarities and resemblances of mind and body between people at a given period of life,—childhood, youth, maturity, and senility,—must be put down to their common government by the dominating endocrine of that particular period of their life. Infancy is an epoch of the thymus; childhood is an epoch of the pineal; adolescence is the epoch of whatever gland is left in control as the result of the life struggle; senility is the epoch of general endocrine deficiency.

Medical training has had its faults on the anatomical and laboratory sides of its teaching in demanding too much time and attention to these points, to the exclusion of information and knowledge concerning the individual, his instincts, emotions, and his psychic character. Many feel that the laboratory field is most important, and, while histology, pathology, physiological chemistry, blood metabolism, and other tests are essential in aiding diagnosis, this branch of medicine must remain in the hands of men devoted to such particular type of endeavor; and, while the physician must be able to understand and interpret such factors, he should not and cannot neglect the study of human nature, of psychology, peculiarities of physical, mental and psychic types, the endocrines and every factor that might aid in proper diagnosis and treatment. Of all men, the physician is thrown into closest contact for the study of man and his ills; but it is, however, no longer a question of an examination of the lungs, the heart, the kidneys, taking the blood pressure, examining the blood, and then giving advice, nor a question only of combating infectious disease and the practice of surgery; but the physician should be able to, and must, understand the difference between normality and abnormality in the numerous and varied deviations of body and mind, and psychic conditions associated with and due to the glands of internal secretion. The ductless glands are the underlying factors in heredity; they have to do with growth and development in the body; they are responsible for instincts and emotions; they have to do with the normal and abnormal psychic and mental states, from which ills come much torture and suffering. Race characteristics are produced and perpetuated, the differences between individuals of the same race, and resemblances of body, mind, or psychic characteristics, whether that of normality or abnormality, are due to the action of the ductless glands.

Shakespeare has said: "We are such stuff as dreams are made of, and our little lives are rounded by a sleep." Scientists now say: "We are such stuff as our glands have made us, and our little lives are rounded by a sheep."

The first truth that must be recognized in the study of the endocrines is that any abnormality in the function of one gland has an effect on the whole cycle, causing overactivity or underactivity of one or more, or of all, glands interrelated in function, introducing all the various changes of hyposecretion and hypersecretion, particularly that of the adrenals, hypophysis, thyroid, and ovary. The triangle of thyroid, adrenal, and pancreas, demonstrating itself as the thyroid hypersecreting, acts through the adrenals on the pancreas; and the action of these three glands changes metabolic and liver function, stimulates peristalsis and intestinal secretion, and hence arise the innumerable digestive disturbances associated with hyperthyroidism. When we then consider the nervous and digestive symptoms of exophthalmic goiter and the mental upset that goes with this condition, and the metabolic changes, the physical and mental lack of tone, and energy in myxedema, which symptoms are easy to perceive in these advanced cases, is it not reasonable to suppose that the innumerable gradations that hyperthyroidism or hypothyroidism may cause, might not have been frequently diagnosed erroneously?

Physiological hyperthyroidism demonstrates itself in tachycardia, with tumultuous heart action, hot and cold flashes, profuse perspiration, great nervous apprehension, decided muscular tremor, an increasing insomnia, inability to eat sufficiently or properly, varying degrees of thyroid enlargement, possible exophthalmos, dermatographia, and evidences of marked instability in neurovascular control.

In so far as my observation of these cases has extended, I feel that few, if any, exhibit Freudian impulses, or anything that could be so designated. They are simply temperamental and unusually capable individuals in whom an imbalance or improper habit of life has caused an unusual demand upon the thyroid, as well as other interrelated glands; and once this is established this increased demand on the thyroid becomes more or less a glandular habit, persisting until it becomes a pathological condition. I firmly believe that most of these cases can be brought back to normal by proper treatment, which includes both social and medical, with undoubtedly mental readjustments, which always demands the intelligent co-operation of the patient, and such treatment must be commenced sufficiently early or before the body habits have been fully developed and established.

Here I want to differentiate sharply the distinction between hyperthyroidism and neurocirculatory asthenia, because of the frequent failure to appreciate such distinction. This must be based on the fact that a patient who has neurocirculatory asthenia is always abnormal in many respects other than thyroid dysfunction, and that a great majority of the cases of this type are undoubtedly of familial or congenital origin. It will be found that they have a distortion of moral perceptions, in many instances a timorousness virtually pathological; and, almost without exception, it is found that there is sexual inadequacy, or perversions and a failure in normal physical expression in all respects. It is self-evident that in all cases of neurocirculatory asthenia, a hyperthyroidism exists as a possible etiological factor, or as a sequence; but it is certainly not the sole endocrine cause, nor is it the basic one.

I hope that my conception of hyperthyroidism has been made clear, and has shown that this condition being present in an individual clearly demonstrates that an abnormal demand on the thyroid has been made as a result of development growth, associated with much emotional output, and the oversecretion and secondary symptoms which result must be expected.

When the above factors are diminished within normal limits, or are directed into other channels, automatically the overaction of the thyroid, together with the secondary characteristics associated with this oversecretion, will drop toward the normal, provided treatment is started before the overstimulation has been too long continued; but, if fixed habits of demand and response are established, the condition will probably result in Graves' disease or take on a neuro-asthenic phase, likely to ruin the life of the patient.

My principal purpose in presenting this subject so much in detail is to point out that the great majority of hyperthyroid cases do not indicate surgical intervention until appropriate treatment has demonstrated the fact that the condition has passed the stage of fixed habit and demand. I believe when surgery is enforced too early serious permanent harm is most likely to result, either in a subsequent hyperthyroidism or an alteration of or holding in abeyance natural or normal tendencies.

The failure properly to diagnose and correctly manage these cases means a resultant Graves' disease, neurasthenia, or eventual nervous, mental, and physical inadequacy.

Three patients who came under my personal notice within the last seven months, and were operated on because they did not have the patience to await the results of reconstructive treatment, are now residents of state hospitals.

Hyperthyroidism produces nervous excitability, very active mentality, muscular tremor, irritability, and quickness of thought; and, if the excess in secretion is not severe enough to produce exophthalmus or goiter, or a very rapid pulse it may produce symptoms of a nervous character that might easily be diagnosed as neurasthenia.

Hyperpituitarism causes tempermental changes such as wakefulness, lack of concentration, indecisiveness, distrust and almost typical psychasthenic symptoms quite like dysthyroidism. Hypopituitarism evidences gradation of a type that may range from mild psychoses to extreme mental derangement. Drowsiness, inability to concentrate, impairment of memory, and lack of secondary sex characteristics are common findings.

With ovarian insufficiency may be seen mental irritability, apprehensive state, uncontrollable temper, restlessness, depression, defects in judgment and memory, lack of self-control, intense headaches, sudden flashes, bladder irritability, and muscular pains of a severe character.

Undoubtedly, the greatest difficulty in the proper interpretation of intraglandular upsets, depends upon the fact that so many of them are of a minor degree, or a degree less than is typical of well-exemplified cases. When we have exophthalmic goiter on the one hand and myxedema on the other; tetany and paralysis agitans as contrasted with myasthenia gravis; where excessive sexual and physical development are opposed to undeveloped genitalia and infantile uteri, acromegaly as compared with osteomalacia, excessive menstruation from hyperplastic ovaries and relative amenorrhea through insufficient ovarian function. If we have also the extreme adrenal or Addison's disease, may we not reasonably expect to find minor degrees of involvement in the glands or pluriglands that would be responsible for lesser conditions in which the symptomatology might often lack the typical earmark which ordinarily defines the standardized types of functional disease, as have been previously mentioned.

A differentiation must be made between the somatic and the mental or psychic side or apparent pathological states due to an endocrine relation. We all have seen attacks of mental depression and blues in many of our cases, premenstrual excitement and states of exaltation of minor degree, that have reached in other cases to the major type of profound melancholia and almost typical maniac depressive states; and it must be granted that variation in degree and intensity must be given consideration in mental cases. Then if the known forms of mental alienation, such as maniac depression, insanity, melancholia, and other pronounced types, are self-evident because of their typical symptomatology, why not minor types due to approximate causes? We know of the excitability associated with the various grades of hyperthyroidism. We know the mental apathy associated with the various degrees of myxedema. Hypophysis alterations and functions produce mental peculiarities and character changes in individuals, and, I am convinced, the mental diseases of the severe type have the same relation to the milder froms and to the so-called neuroses and psychoses, to neurasthenia and hysteria, that the major forms of exophthalmic goiter and myxedema must bear to the minor variations of these diseases.

Endocrinology is making rapid strides towards the solution of many embarrassing and unsatisfactory conditions that in the past have been overlooked, and promises in the near future to overthrow many of the older ideas presented through physiology, pathology, and therapy in the text-books of to-day. It is only because our knowledge is so indefinite on many points and our therapeutic endeavors along this line are yet so groping that more has not been accomplished. New things are always treated with skepticism, but the response in selected cases to the treatment of functional derangements by glandular therapy is so astounding at times and so absolutely incontrovertible that it will not be long before the profession as a whole will be adding, by working together, a vast amount of new data bearing on this subject which can not help proving beyond any reasonable doubt that, while heredity virtually shaped our destiny, there is an endocrinity that runs parallel with it.

The surgeon has been put to the acid test repeatedly to solve the problem as to why his case has developed a post-operative asthenia that has failed to respond to the ordinary therapy that is usual in such cases; but he has failed to appreciate that his patient was decidedly below par at the time of operation, that a toxic condition was present at the time which had lowered the patient's recuperative and reconstructive forces, that the anesthetic, the surgical shock, a possible loss of blood, and an emotional episode had created a complex that made it impossible for a comeback without proper adjustment and support having been given to those important glandular structures whose function it is to restore normal balance.

Post-infectious asthenia is the most common condition met with to-day since the influenza has made so great inroads on the population of the country. These cases, as the surgical cases before mentioned, fail to respond to routine reconstructive medication as usually outlined, but when detoxicating and remineralizing medication is instituted with supportive treatment applied to those glands of the body which have played out under the unusual strain, pronouncedly satisfactory results are shown too frequently to think it a matter of coincidence or accident.

Based on the theory and belief that the ductless glands preside over the development of the inherited body and mind, controlling and regulating many of their functions, through all the years of life, the theory of treatment follows two plans: first, to give those extracts of which there is an insufficient production; and, second, to counteract the overproduction of glandular secretions, by giving other hormones which diminish, oppose, or inhibit this overactivity. To go about this intelligently one must have a knowledge of the physiological action of the various glands and their hormones. Note must be made of the changes produced by the overactivity or underactivity of the glands, as evidenced by definite physical diagnosis; then by the administration of gland extracts in a therapeutic manner an opportunity is given to verify the physiological and pathological facts, and the results wlll show definitely the correctness or fallacy of either therapy or diagnosis.

DISCUSSION

Dr. W. A. Jones (Minneapolis, Minn.): Recently, while in St. Louis, I attended the meeting of the Society of Endocrinology and also heard the symposium on endocrinology, and I feel that my endocrine system has either been entirely exhausted or much overstimulated. I recall with a great deal of pleasure the fact that I have in one of the drawers of my desk a paper on this subject, and, whether it is ripening or rotting, I do not know, because my conception of our endocrine system is still very murky.

I believe Dr. Hotchkiss has covered all of the theories that have been so far accepted, and until something better is given us we must follow them out until we have reached a temporary conclusion, at least. Which theories we are to accept and which we are to reject, is still unknown, but it is true that certain of the ductless glands are of great importance in the practice of medicine and in the treatment of the individual. As these patients are usually defective, if they are defective in one organ they may be in another, and the whole subject might be included under the head of defectives.

I was much shocked when I heard a man read a really well-worked out paper on gastrin and secretin, and ascribed it to the secretion of the parathyroid glands, but he admitted in the course of his remarks that perhaps the parathyroid had not as much to do with it as he had hoped, and when Professor Carlson, of Chicago, probably one of the greatest physiologists in the country, arose and disputed their work and their facts, I was more and more confused.

The principal gland we have to deal with is the thyroid—that was what started us on the endocrine work. The second is the pituitary, and the third, still somewhat unknown, is the adrenal gland. It is possible that these have a combined system by which they may operate, or they may be influenced in certain ways by other glands that are not, strictly speaking, endocrine glands What do we know about the spleen or the pancreas? We are learning more about them all the time. What do we know about the secretions of the liver, of the gastro-intestinal tract, and what really do we know of the testes and ovaries, except in a very general way?

I should say that hypothyroidism was compensated for by the administration of dried thyroid gland. I was again surprised to hear this eminent physiologist say that the hyperthyroidism was of no influence whatever, that its secretions were not due to the increased activity of the thyroid gland. He put it to one side for further investigation before he accepted it as a fact. He thought there was something behind it that was much more important than the hypersecretion.

Lastly, the main contention is: Are the endocrines first in our consideration, or is the sympathetic nervous system first? It has been pretty well established now that the sympathetic nervous system has almost everything about it with the important vital functions of the body, and it certainly has been shown that cross-section of the plexus in any part of the body produces disturbance of the endocrine supplied by that part. I think we should look first into the sympathetic and secondly into the endocrine system.

Dr. John A. Pratt (Minneapolis, Minn.): I would like to register the suprarenal gland. Several years ago I carried twenty-five cases of otosclerosis through a number of months of administering the suprarenal gland. With this treatment we obtained a lessening of the noise and some improvement in hearing. In the treatment of otosclerosis in the past many years we have had no improvement of any kind, but in the last seven years every case of otosclerosis has received the desiccated suprarenal gland, one grain three times a day, with improvement in many cases. We have used the desiccated suprarenal gland in a series of atrophic rhinitis cases. Before this our treatment was to use oils and sprays, to irrigate the nose and remove the crusts, but we found that after using the desiccated gland a short time, sometimes a week or two, these crusts would be blown out easily, and in a short time the membrane of the nose, which was quite anemic, would become red.

I have not seen a case of atrophy of the turbinates in atrophic rhinitis where hypertrophy has occurred again, but we have found soft hyperplasias developing to protect the nose in place of these turbinates. I do not know whether any one else is working on this line, but I have been working for years and find that cases of atrophic rhinitis and otosclerosis improve markedly under this treatment. A recent patient, a very large woman, had been having typical otosclerotic trouble for years. She heard the watch at one-half inch. I put her on suprarenal gland and within a few weeks her hearing had improved to eleven inches. I always put my atrophic rhinitis and otosclerosis cases on suprarenal gland.

Dr. Walter R. Ramsey (St. Paul, Minn.): On the subject of treatment of children and their defects, of course, the most typical thing we see where there is complete absence of the thyroid gland is the cretin, and of course the results we get from administration of thyroid are nothing short of miraculous. Within a few weeks the whole picture will be changed—the mentality and expression.

What I wish to mention and emphasize particularly is this: Since these things are typical, why are there not all gradations of these deficiencies? The fact is that that is certainly the case. Within the last ten years we have been convinced that there are all gradations of deficiency of the thyroid gland in children, from the complete absence to just the minimum, and on several occasions I have observed children of only a few weeks of age who began to assume something of the facies of the cretin, but not typical, where just a very little bit of thyroid would bring them up to normal; they would begin to gain and then the gland would take up its function and continue very well for the future. Within the last year or two we have seen many defective children, particularly the type we call Mongolians. They are idiots, or very closely approach idiocy. There are all grades of those from the high to the low moron. In some of these cases the moderate use of the mixed gland is followed by remarkable results. In almost all of these cases it appears to bring about a certain degree of improvement, and then stops. I think there is a great field for the study of moderate deficiencies of glands where the administration of the proper gland secretion may be followed by brilliant and permanent results.

Dr. W. M. Hotchkiss (closing): I feel, like Dr. Jones, that the endocrines are simply supplementary. I wanted to say that I feel that any endeavor on the part of the physician to get results from monoglandular treatment ordinarily will not be nearly as successful as pluriglandular treatment.

I think Dr. Crawford spoke in his paper of the endeavor to get results from glandular treatment when there is specific involvement. Two things have been attempted: to supply increase in secretion where it is deficient, and to inhibit secretions that are an evidence of irritability in other glands.

INFLAMMATORY CONDITIONS OF THE MASTOID PROCESS AND THE MIDDLE EAR*

By A. A. Sornsen, M.D.

ABERDEEN, SOUTH DAKOTA

After having prepared a paper covering some of the more important points on Inflammatory Conditions of the Mastoid Process and Middle Ear, which is the subject of this paper, it was found that much more than the allotted time would be consumed in delivering it; therefore the writer has necessarily and reluctantly eliminated considerable of the treatise on mastoiditis and some of the points on the middle ear which he had hoped to present.

In the whole range of surgical procedure there is probably no single operation which has more often served to save life and combat disease than the exceedingly simple one which consists in incising the drum membrane to permit the evacuation of pus. The much more complicated and serious intervention which we are accustomed to term the "mastoid operation" is, of course, related to this, and the conditions necessitating either or both of them are also so closely related that any consideration of the one makes imperative at least a passing reference to the other.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

When inflammatory conditions are present in the middle ear, inspection may show the tympanic membrane to be either thick or thin, clear or opaque, bright red, or rather pale in color. The membrane may appear to be in its normal position, or, again, we may observe it to be retracted or displaying a tendency to bulge forward. If perforation of the membrane has already taken place the size and location of the perforations may show a wide variation; they may be single or multiple, and their margins will often show a great difference in thickness, and be either entirely free and movable, or adherent to the adjacent tissue.

Under the same state the ossicles also may show wide variations in their condition. At times they are freely movable, at others quite the opposite. We may see the handle of the malleus as wide, or narrow, or greatly foreshortened; and all three of the ossicles may be necrotic, misplaced, or missing entirely. If the condition is an old one we may find a thin serous or purulent discharge, even containing bone débris or epithelium with the micro-organisms ordinarily accompanying such a condition. If there is a noticeable odor which is not abated by treatment, it is generally indicative of necrosis, and renders the prognosis unfavorable. Multiple "pepper-box" perforations, through which issues a thick creamy discharge, give a picture characteristic of a tubercular infection. Rupture of the tympanum by trauma is not uncommon.

The character of the discharge and the whole course of the infection varies greatly according to the constitutional condition of the patient, the character of the infection, and many other factors. Inflammatory conditions in the membrana tympani frequently lead to histologic changes such as a separation of the external cuticular layer from the middle fibrous one beneath it, or a general thickening of all three layers, or, more rarely, a marked attenuation of the different layers. Occasionally deposits will be formed, the drum membrane appearing to be covered with spots of chalky substance. Again, instead of a calcareous thickening, cornification will take place. As a rule, healing of a ruptured or incised drum membrane occurs very readily. When old, unhealed perforations are found, their persistence can usually be traced to a growth of skin around the margin.

Myringitis, or inflammation of the drum membrane, without involvement of the middle ear, is said to have been frequently observed following, or coincident with, influenza. The acute form is a very painful condition caused by infection, irritation, or perhaps a trauma not sufficiently severe to destroy the membrane. Hyperemia, usually of the posterior part, is the initial manifestation, and this is quickly followed by infiltration and the appearance of blisters which soon rupture into the external auditory canal. The course of this affection is usually brief, and the prognosis good. The chronic form of myringitis often accompanies purulent otitis media, its most salient feature being the formation upon the membrane of granular tissue.

There are two common forms of acute middle-ear inflammation, in both of which the subjective symptoms may be identical and the indications for treatment very similar. The first is that known as acute catarrhal otitis media, generally related to such affections as rhinitis and influenza; to septic hypertrophied adenoid tissue in the nasopharyngeal vault; or to the presence of certain micro-organisms, being commonly an extension of a nasopharyngeal infection through the Eustachian tube and capable of assuming a subacute or even chronic form.

A second form is acute purulent or suppurative otitis media, which is always of bacterial origin, often resulting from the entrance of such organisms as the pneumococcus, staphylococcus, streptococcus, or influenza bacillus into the tympanic cavity by way of the Eustachian tube, where they produce inflammation. Such micro-organisms are often associated with such a general systemic infection as pneumonia or typhoid, or may result from a tonsillitis or septic nasopharyngitis. Atmospheric changes which cause sudden chilling of the surface of the body, thus stirring up a latent nephritis or diabetes, may also contribute to the establishment of a purulent otitis media.

The onset of acute catarrhal otitis media is often sudden. Sometimes the first sensation felt by the patient is one of fullness or occlusion (the ear, as the patient expresses it, is "all stopped up"), but more often pain will be the first symptom noticed. The earache rapidly increases in severity until it becomes well-nigh unendurable. As pus formation begins, the pain becomes "throbbing" in character, and tinnitus and impairment of hearing are noticeable. Fever is a frequent accompaniment. In children it is practically always present, and in patients of any age digestive disturbance is a common occurrence. Inspection of the drum will reveal it as red and bulging under the pressure of the pus behind it. Occasionally one is able to see the margin of the fluid or exudate. If the drum is not immediately incised, rupture usually occurs in from six to twenty-four hours after the onset of pain. The discharge of exudate through the perforated drum at once relieves the pain, and, if proper drainage is established, the prognosis for ultimate recovery with no impairment of hearing is very good. If the drum is promptly and carefully incised it usually heals with little or no structual change, and, even if it is allowed to undergo spontaneous rupture, the damage is not often extensive or permanent.

The indications of a condition of general sepsis will suggest purulency, and, except when the patient is an infant or child, we do not find so high a temperature in the catarrhal form as in the suppurative. The same causal factors which operate in the production of the simpler form of acute tympanic inflammation may give rise to a purulent otitis, the deciding influence probably being the amount of resistance to infection offered by the individual patient. As in the catarrhal form, the patient's first complaint is usually of pain, due to the congestion of the tympanum and the adjacent cavity, and the exudation of a purulent or mucopurulent discharge. This is followed by swelling of the cavity lining. Occasionally hemorrhagic and round-cell infiltration may be in evidence, and inflammation of the tympanic membrane itself, the upper posterior portion becoming intensely red and bulging markedly, which is a sure indication of the presence of pus in the vault behind. Involvement of the Eustachian tube and the mastoid cells frequently follows at this stage. Perforation of the membrana tympani may occur early in the course of the affection or may be delayed much longer than in the acute catarrhal form, and the discharge may vary widely, at times being thick and loaded with mucus, at others thin and watery, with or without admixture of blood, and more or less purulent in character.

Free and early incision of the membrane at its posterior-inferior quadrant, making a straight or V-shaped opening, is the routine treatment of acute suppurative otitis media. If rupture takes place before surgical intervention is possible, it may be necessary to enlarge the opening. A general anesthetic may be necessary, but local analgesia usually proves sufficient to permit the making of the incision; the employment of Bonian's mixture consisting of equal parts of cocaine, phenol, and menthol; a small pledget of cotton well saturated with this mixture being allowed to remain against the site of incision for eight minutes. If the membrane is thus prepared and a sufficiently sharp scalpel is employed the incision can be made with very little additional suffering to the patient. No attempts should be made to disturb the blisters in myringitis; and, if we are dealing early with the results of trauma, our efforts should be restricted to controlling hemorrhage and pain, unless suppuration has set in.

Locally the medication in myringitis and otitis media consists of the silver preparations, together with alcohol, adrenalin, 12 per cent, phenol or glycerine, and boric solution; also injections of argyrol into the tympanic cavity by means of a small rubber-tipped catheter. These drugs may be blown in through the Eustachian tube, or injected directly into the tympanic cavity through the incision or the site of rupture.

There are numerous complications which may arise during the course of an acute purulent otitis media, such as sloughing of the mucous membrane, accompanied by bone necrosis, swelling of the canal, or loss of the ossicles. Complete destruction of the drum membrane may occur, and. later in the course of the infection, we sometimes find the tympanic cavity occluded by polypi or granulations. More serious still are extensions of the inflammation to the labyrinth behind, to the attic and antrum, or even to the lateral sinus and the brain itself.

The most common serious complication, however, is extension to the mastoid process and destruction of its cells. The onset of pyogenic infection in the middle ear is practically always followed in a few days by a more or less severe mastoiditis. Primary mastoiditis is rare, so rare, indeed, that for all practical considerations it is non-existent. Spontaneous recovery is relatively frequent, and it is quite possible for inflammation of the mastoid to exist as an extension of an otitis media, although there may be no discharge from the affected ear, and the patient may not have experienced any pain. The mastoid may give no sign during the course of an acute purulent otitis, but, if the infection is severe, the drainage not sufficiently free, or the patient's vitality greatly lowered, destruction of the mastoid cells is very prone to take place.

The existence of mastoiditis is usually evinced by pain and swelling over the affected area, but the aurist must always bear in mind the possibility of both these symptoms being altogether absent. If pain is experienced it will usually radiate to the side of the head and toward the front, in the direction of the eye. If a swelling is observed in the posterior or upper part of the auditory canal it may be regarded as a practically certain sign of mastoid inflammation. Very often tenderness can be demonstrated, but this symptom sometimes exists when there is no mastoiditis; and, again, extreme inflammation in this area may fail to induce it. If present it can most frequently be demonstrated over the tip of the mastoid, the antrum, or the emissary vein. If there is absorption of bacterial toxin we are likely to witness a rise of temperature, often as high as 105°, but this indication, too, may in certain cases be altogether absent. Inspected by transillumination the diseased area will be observed to obstruct the passage of light through the mastoid process. Not only mastoid inflammation, but an atypical location of the lateral sinus, may cause such obstruction, however; therefore, while it may be an indication for operation there is a possibility of doubt.

The existence of continuous pain behind the ear; swelling in the posterior wall of the canal in the ear and neck; or evidence of pus beneath the skin or in the neck—all these are indications for surgical intervention. If there is a stoppage in the drainage from the ear following incision or rupture of the membrane, if on transillumination certain portions of the mastoid process offer continued obstruction to the passage of light, if suppuration is long-continued or bits of bone débris appear in the exudate—above all, if there are any indications of labyrinth, sinus, or brain involvement, immediate surgical treatment is imperative. And if any or all of the symptoms just enumerated occur without a preceding otitis media such treatment is still more urgent.

Conditions influencing otitis media to become chronic are destruction of mucous membrane, necrosis of bone, small openings into antrum, granulations, mastoid fistula draining into the canal, and cholesteatoma.

The establishment of proper drainage is the prime requisite in the treatment of chronic suppurative otitis, and enlargement of the perforation is often necessary.

The existence of chronic otitis will first be evidenced by impairment of the hearing, due to retraction caused by the absorption of air, to swelling, and to the presence of exudate. Tinnitus will probably be present, owing to changes in the tension of the membrane or to negative pressure in the foramina. Inspection will show changes in the appearance of the membrane which are due to the character of the discharge, and its course through the tympanic cavity; and congestion of the malleal plexus and other soft structures will be in evidence. Improvement in hearing will follow inflation of the Eustachian tube.

If the patient does not present himself for examination until the disease has progressed to the second stage, we will find that inflation and massage will not improve the hearing as much as in the first stage, and even after repeated inflation the soft structures will be enlarged, and the handle of the malleus appear widened.

If the examination does not take place until the disease is in the third stage, all the conditions previously mentioned will be more pronounced, and, in addition, the handle of the malleus will now look narrow and foreshortened, and bone-conduction will show the beginnings of impairment. Not only will loss of hearing and tinnitus be even more pronounced, but the patient will complain of being able to hear better in noisy surroundings or in the presence of marked vibrations (the so-called paracusis of Willis); likewise, negative findings in Gelle's compression test will indicate ankylosis of the footplate of the stapes and the rest of the ossicular chain.

Chronic suppurative otitis media is not generally regarded as offering a cheerful prognosis, for the reason that it seldom reaches the aurist until the second or third stage, when the chance of cure is largely or entirely gone. If treatment is instituted promptly, and the patency of the Eustachian tube can be maintained, we have a good chance of complete restoration of auditory function. As the disease progresses the chances of restoring the hearing are proportionately diminished; and when it has been allowed to reach the third stage without treatment very little hope can be offered to the patient. Treatment of all three stages is very much the same: building up the general health, removing existing obstructions from the nose and throat, and providing free ventilation and drainage for all diseased areas. Benefit will follow local attention to the tube; nitrate of silver may be applied to the pharyngeal meatus, and the tympanic cavity treated with camphor-menthol through the Eustachian tube. Positive galvanism to the membraneous portion of the tube has also proved useful. Inflation and massage, as already mentioned, are very helpful, though massage should be employed with a good deal of discretion, especially if we are dealing with the third stage. This stage may be benefited by the application of negative galvanism to the tympanic membrane, massage being administered between the electrical treatments, which are given twice a week. One-fourth milliampere is a sufficient application, but the patient may be allowed to act as his own meter and rheostat.

The treatment of middle-ear disease, its complications and sequelæ, is a subject too wide to be considered at this time with any degree of completeness. The importance of early recognition and prompt treatment of these conditions can hardly be overestimated, for there is no doubt that the incidence of deafness, and that exasperating condition commonly called "being hard of hearing," could be immeasurably reduced if all middle-ear inflammations came promptly to the care of the otologist. The family doctor is the best missionary to spread this gospel, and the education of the general public in regard to the sinister significance of "running ears" ought to receive more attention than has hitherto been accorded to it, for it is only by such means that we can hope to combat these conditions with any degree of success, or satisfaction either to our patients or ourselves.

DISCUSSION

Dr. J. G. Parsons (Sioux Falls): Dr. Sornsen's paper is so comprehensive and extensive, that it would be rather difficult to discuss it in general. I feel when a paper of this kind is presented to a group of men who are interested in the subject largely from the standpoint of the general practitioner, who is meeting these cases every day, emphasis should be given especially to those things which are going to be of practical value to him, and, with that in mind, I desire to stress some of the points brought out in this excellent paper.

Otitis media is something like the poor, whom we have always with us, but, like the poor, we are likely to take it for granted, and oftentimes these cases are slighted. The fact that an infection of the middle ear can extend into the adjacent structures and become a menace to life is so well understood that it is unnecessary to emphasize that point. However, I believe we should not lose sight of the fact that in these cases the same fundamental principles apply as in surgery of infections elsewhere. You need to have a good picture of what may happen if you do not do the right thing, and then you want to make it your business to see that good thorough drainage is established and kept up. This cannot be done, as is altogether too often done, by telling the parent of the child with a running ear to wash it out, or, as is too frequently advised, give them a bottle of peroxid of hydrogen and a medicine-dropper and let them go ahead with that. That is absolutely to be condemned. If you have not got a hole big enough, make it larger, and if the opening is large enough, keep the drainage up and keep the patient under observation. If it is not practicable to have the case put into the hands of an otologist, you have to cut the coat according to your cloth, but you can always make an effort to see that the pus coming from the internal canal is taken care of by irrigation. In many cases you may put in a little cotton-wick, winding on a sterile probe a piece of absorbent cotton so that you can make a little plug which will easily go into the external canal, slip it off from the probe, and insert it into the external canal. That is something almost anybody can do, but it should be done under aseptic precautions.

As to mastoid involvement, which is concerned in these cases, I think we all realize that we ought to be on the lookout for the cardinal symptoms of tenderness, the three classical points outlined by the essayist; but I would like to emphasize a fact which seems to be often overlooked,—that it is unnecessary for you to have a big swelling, pushing the ear out straight, before you make a diagnosis of acute mastoiditis. These cases should be diagnosed before that. Unfortunately, these patients come to you sometimes in that condition, and then it is a foregone conclusion that these cases need surgical intervention. I would like to stress the importance of suspecting that you may have mastoid involvement in any case of otitis media.

I wish particularly to make a statement with regard to the chronic running ear. I do not believe we have taken this matter seriously enough to heart. When you have a necrotic process in the ear, the Lord only knows whether it is going to rot internally or externally. We ought not to neglect these cases and allow them to go along of themselves, putting in a few drops of medicine to keep the smell out. That is what brings these patients to our offices. They do not like the smell that comes out of their ears. So attention is brought to their condition in that way.

I would emphasize the fact that these chronic cases should be put under careful treatment, and, if things are not practical to carry out this treatment for a reasonable length of time so as to get them cleaned up, they should be submitted to the radical mastoid operation for cleaning out completely the necrotic tissue. That is the thing to make your patient safe. Safety is the first essential.

Dr. Samuel A. Keller (Sioux Falls): I wish to refer, briefly, to otitis media in infants. In working with a pediatrician constantly for the past two years I have had the opportunity to examine a large per cent of the children he has seen, and it is my impression that all sick babies ought to have their ears investigated; that the aural examination should be as much of a routine as examination of the chest or abdomen. We should not wait for the child to give us symptoms of ear trouble. The text-book symptom in which the baby puts the hand up to the affected ear is the exception rather than the rule. More commonly the mother or physician will notice that the child flinches when one or both ears are touched. Often there is no symptom except the general findings (temperature, etc.), yet on examination we find a red or bulging membrane.

There is another class of cases I wish to refer to, and that is the cases in which the ear findings are exceedingly slight. If we examine these children while struggling and with a poor light we shall overlook many of this type. It is necessary to study them closely. In such a case the baby has been sick, with increased temperature, white cell count, etc., and the examiner can find nothing to account for it. One or both drum membranes will show a rather dull, glazed appearance, which may require some study to differentiate it from the normal. Naturally, we have been conservative about opening such drums and have always delayed doing so, yet in every case incision of the drums was followed by clearing up of general symptoms.

I have enjoyed the paper very much.

Dr. Sornsen (closing): I have no doubt that, as Dr. Keller has said, earache in children is often overlooked, and many are treated for bellyache when they have inflammation of the middle ear.

Dr. A. H. Andrews, of Chicago, to whom I am indebted for much information and many suggestions, has for a long time used a 12 per cent solution of phenol in glycerine in cases of acute otitis media. This preparation meets all the indications, being antiseptic, anesthetic, and hydroscopic. It aborts many of these cases when taken in their incipiency. In the subacute and chronic conditions no better application can be found than alcohol, which may be employed at first in a 50 per cent dilution, gradually reduced until one is using the full strength.

As Dr. Parsons, in his interesting discussion of pus conditions of the middle ear and mastoid, said, capillary drainage is the best to employ when the source can be reached. A suppurative process within the mastoid may give rise to perforation in the bony plate forming the inner surface of the tip of the mastoid, and the pus which escapes through such a perforation burrows downward in the neck beneath the sternomastoid, causing a prominent elongated swelling known as Bezold's abscess. If the pus escapes through the posterior wall of the canal it may serve to form a sinus covered with granulations; if through the cortex, it will give rise to superficial abscess; or, if its course is backward into the lateral sinus or cerebellar cavity an intradural or extradural abscess will be the result. An intradural or extradural abscess may also form if the pus if forced upward into the cranial cavity. At times the course of the pus may be downward through the Eustachian tube, where it will be absorbed if there is no necrotic process, or it may pass through the labyrinth into the cerebellar cavity or through the antrum, attic, or external canal, as in simple otitis media.

FURTHER PROGRESS IN TUBERCULOSIS IN CHILDREN FROM THE PUBLIC HEALTH STANDPOINT*

By F. E. Harrington, M.D., LL.D.
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With the close of the 1921-22 school year on June 16, 1922, the Lymanhurst Open-Air School of Minneapolis completed the first year of operation. To say that Lymanhurst had fulfilled the expectations is mildly expressing the results of the year's achievements. As a matter of fact Lymanhurst far exceeded the expectations under which it started, and it began its second year in full swing to complete another record.

The first course at Lymanhurst started on May 31, 1921, and the school ran as a regular school until June 17, at which time the regular course was converted into a volunteer summer school, of eight weeks. With the opening of the school term in September, Lymanhurst resumed the regular school curriculum, which it carried to completion on June 16, 1922, graduating two children from the eighth grade. There had been admitted during the twelve months 210 children. Of this number 12 were transferred to institutional care, the physical progress of the children not being satisfactory and more intensive hospitalization being indicated. Ninety-three children were transferred back to their regular schools during the course of the year. This was made possible by the close adaptation of the curricula at Lymanhurst to the regular curricula of the Minneapolis public school system.

Of the total number of children admitted to Lymanhurst and whose stay was of sufficient length to carry them over a quarterly promotion period there were but four failures to make grades. One failure was due to the physical condition of the child, and the other three to lack of application. There were five other children who failed to make promotion grades because of extended absences for numerous reasons, such as long distances to travel, inclement weather, and physical condition. Despite the fact that all children were physically handicapped and somewhat interrupted in their entire study system,

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*Presented before the Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, Minneapolis.

Lymanhurst makes a creditable showing with only nine failures. The course of study was so arranged that children by classes were assigned study periods at regular definite hours, during which periods the medical aspect of the child was taken under consideration by the Staff. No child was, therefore, with rare exceptions, taken out of recitation or class hours for examination or treatment. This scheme was evolved by Miss Katherine G. Young, Principal of the School, and worked admirably throughout the year.

A study of the symposium presented before the Hennepin County Medical Society in February, 1922 (published in The Journal-Lancet for May 15, 1922), will disclose the fact that as much advantage was gained in negative disclosures as was attributed to active conditions. I feel confident that nowhere have children been more closely observed outside of institutional life than have the children at Lymanhurst; and the Staff are now in a position to contribute to the medical world valuable data on child life and growth, anatomical as well as physiological, considering also the pathology of early tuberculosis and its intercurrent findings.

Having taken this step and after a year's study of its application and the results obtained and deduced, one further step is necessary to complete the train of evidence to indict and convict the tubercle bacillus, human or bovine, of its ravages of the human race between the period of early infection and first demonstrable symptomatology discoverable by blood tests and the *x*-ray, and its manifestations in the adult form of the disease The diagnosis of the adult infection by physical signs is ever present, and the reports, of both morbidity and mortality, are matters of record in every health department throughout the country. This intermediate period to which I refer is the age of human adolescence, the transition stage between childhood and maturity, and exists in partly grown children or young adults who have passed through the eighth grade of schooling. Still school children, these students can be found among the 12,000 students attending the high schools of Minneapolis. So far, the scope of Lymanhurst has from necessity not included high school ages, but the problem, nevertheless, presents itself for study, and the results of such study, I am satisfied, will be an enlightening truth and valuable contribution to the history of tuberculosis.

It is with pleasure that I can announce at this time that Superintendent W. F. Webster, of the Minneapolis Public Schools, has agreed to and, in fact, heartily endorses a movement which will permit of the physical examination of a group of high school students for the purpose of study and detail classified diagnosis. To carry out this project the facilities at Lymanhurst in their entirety are at the service of the Staff, and, with full co-operation and accord from the Division of Public Health and the Department of School Hygiene, the world at large may soon expect an added star in the field of tuberculosis research.

In addition to the activities primarily contemplated for Lymanhurst and which constituted the first few months of activities it became advisable and necessary to establish, first, an out-patient diagnostic dispensary for the careful examination of children who, giving positive history or showing evidence of tuberculosis, had not been examined; and, secondly, the establishment of a ward for the hospitalization of selected cases for further and more detailed observation. Both of these activities were taken on. The out-patient service began on January 24, 1922, and during the period from the first clinic day to the close of school, in June, 380 cases had been examined. The observation ward was planned to accommodate twenty bed-patients and was opened on March 6, 1922. From the time of the opening of the ward until the close of school, 37 patients had been admitted for observation. Children able to attend classes from the wards did so and were kept in bed from the close of school hours until the following morning. Others, whose condition was such that quiet was necessary, were given regular institutional care. Of the total number of children thus under observation 11 were transferred from the observation wards to institutions caring for tuberculous children. The other children were transferred after observation and study to the regular classes at Lymanhurst.

It strikes me that at this time, in reciting the achievements of Lymanhurst's first year and the studies which these achievements have marked out for the future, an acknowledgment is due where success has been attained through personal effort and interest. To the Staff of Lymanhurst, which has grown from the original five to twenty-two members, embracing all phases of pediatrics and every possible subject of interest in child study, too much credit cannot be given for their untiring and unselfish devotion to their self-appointed duties and for the hours spent in carrying out these functions at Lymanhurst. Certainly no closer co-operation could have been had than existed between the Lymanhurst Staff and personnel and the Board of Education representatives, headed by Miss Katherine G. Young, Principal, and her four teachers, and the Divisions of the Board of Public Welfare. Not alone do these principals on the two sides of the Lymanhurst activities, professional and pedagogic, warrant words of commendation and praise, but the Lymanhurst operating personnel, under the efficient supervision of Mrs. Hazel Mitchell, have worked untiringly and with the most perfect harmony to achieve success in a new field unexplored and without precedents.

When the author of this paper can, in all fairness and candor, make these statements without reservation or evasion there can be, and in fact must be, no hesitation on the part of those interested to see in these words the facts that have spelled the success for this first year's achievements.

Lymanhurst has been given credit for its work by the National Tuberculosis Association and has been a source of inquiry from numerous tuberculosis schools and other organizations throughout the country. So well has the work been done; so satisfactorily has it re-acted on the pupils attending the school and their families; so completely has the school curriculum been applied and so scientifically the medical studies made that through these efforts and through these successes, Lymanhurst, the first of its kind in the United States, has taken its stand never to be discontinued.

The studies thus far conducted are still incomplete, and the time is now ripe for the advance investigations previously referred to. We have by no means covered the field of early childhood tuberculosis. Of the sixty-odd thousand school children of Minneapolis many are yet to be found who properly belong to the classification of Lymanhurst students. The machinery for carrying on what has already been started is adequate, but space is limited Our studies so far have opened the doors to knowledge and information that previously was all but unknown. Our efforts have been in a field heretofore unexplored, and the results of our investigations are offered to the world as the exploration of a virgin field. We must carry on in the future with no lessened effort, and with the knowledge at hand we are preparing to take further steps in an uncharted sea. The adolescent school child is no less an important factor in our economic life than is the child who has been the subject of our Lymanhurst studies. The door is open; the material is at hand. The classification of the next age groups is important; the discovery of the prevalence of tuberculosis infection in age groups beyond those already carefully investigated will be no less interesting and far more profitable than have been the endeavors of the past year.

From the public health standpoint tuberculosis infection means potential danger. We are progressing beyond the stage of attempting to protect a community from the spread of a bacterial disease. From now on tuberculosis must be approached from the standpoint of economic life-saving, as well as the prevention of infection spread; and it is this field of activity that we of Lymanhurst must accept and cope with. If in the school year 1922-23 we are able to bring to light hidden conditions equal to the problems solved during the school year of 1921-22 our efforts will not be in vain; Minneapolis will be the gainer, and the nation-wide field in the studies of tuberculosis will find in Minneapolis a guiding light tending to the cure and eradication of what was once considered the death knell of the infected,—the great white plague.

THE COUNTRY DOCTOR—A VANISHING SPECIES?

By F. D. Smith, M.D.
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After reading, in current medical journals, various comments on the growing scarcity of physicians in rural communities, and noting that the lay press is taking up the cry, the writer was led to consider the matter as one worth investigating, and for some time has been interested in ascertaining whether such a condition really exists.

There seems to be quite a number of small villages, in the sparsely settled parts of this state and the Dakotas, that since the war have lost their resident physicians; but, on closer inquiry, there is the usual reason found that the work is being done by physicians in towns not far away, and that the telephone and the automobile combine to make the success of a new doctor in the neglected town quite uncertain.

The solution of the problem is then necessarily bound up with the economic questions of the times,—a process of evolution; first, the small town, then the city, and later the metropolis. The virgin soil is first subdued, and towns spring up like the planted corn, each hopeful that it will become the great center of life and industry. That only a few really grow beyond their original townsite and that more decay, is the inevitable result; then come the drought and the weeds, the thinning out of the rural population, and the lure of the large city, and the influence of wartime activity leading to over-crowding the cities and to financial depression in the rural community.

The physician located in one of the newer towns in the West finds that the population of his surrounding territory becomes thinned out until not 25 per cent of his old families are left, and the few who are left are so impoverished that collections are very poor. Such conditions are not the rule, but from personal experience in the Dakotas the writer knows they are far too frequent.

Another, and by no means the least, of all reasons is the tendency of modern medical teaching to create the specialist and the clinic. The result is:

1. The public has been taught to turn directly to the clinic or the specialist without first seeking the advice of the once revered "family physician."
2. The local doctor is expected to give equally accurate and scientific opinions as the group, and do it all himself without the facilities and advantages of the latter.
3. Economic conditions in the small town prohibit the general practitioner from surrounding himself with proper equipment and helps to enable him to give this kind of service; and it remains for him to dig it out himself, alone and unheralded.

The surgeon or the consultant in the group little knows the responsibility usually carried by the country doctor, unless he has been one himself.

The successful man in the isolated small town has to meet any and all emergencies alone, do a version with an untrained old woman for assistant, a tracheotomy or a difficult ligation by the light of a smoky lamp in a ten by twelve shack on the prairie. His time is never his own, to say nothing of time for sleep.

The student of today is usually financially able to pursue his course of study with all the luxurious conveniences of modern life at his command; he never has had to accustom himself to the inconveniences still existing in the small town—and who can blame him if he chooses to fit himself for a specialty?

The work to be done in a country practice is not now, nor will it ever be, anything but drudgery, and the hardships, while less than those of a generation ago, are still greater than the milk-fed product of our twentieth century educational system wishes to tackle.

Another reason why the medical student of to-day does not care for the rural experience, is that, no matter what pecuniary or other advantage he may derive from country practice, should he later try to establish himself in a city, he finds that all his experience does not get proper recognition from his city colleagues that is comparable to having had a two or three years' assistantship in a group or clinic; and without this last-named sine qua non he is only tolerated as a good fellow; but where did he receive his training?

He knows that many of the men now recognized as leaders in the profession to-day are graduates of this same school of hard knocks, with a three-year medical school training, often with no internship. But to-day the whole world has changed; what was good then is taboo now. The respected "family physician" is fast becoming a dodo; and the "country practitioner" shares his practice with the city "clinic" a hundred miles away, and the honor of the title "Doctor" with the youthful ex-barber or soda-fountain clerk who has come to town as an osteopath.

The efforts of modern higher education, the standardization of hospitals, etc., are all laudable attempts to attain higher ideals.

Likewise the American College of Surgeons and kindred professional organizations have primarily unselfish motives, but why exclude the man who has covered the same course and trod the same weary road, but alone and unapplauded in some tank town on the prairie?

The man who enters private practice to-day must decide which path he will follow, for there is no more chance to change from a small town doctor to a surgeon in the city, for there is no credit given for solitary labor. Should he choose a promising country town, he soon finds to his sorrow that he must follow the lone trail like his aged and less carefully trained competitor; the territory is too small to support a group or a hospital, or, as is more than likely, the other men simply won't group, let alone treat him as an equal in counsel. All these things tend to turn the embryonic medic toward the special training camp, and the large city.

The trend of the times is still toward the larger cities, and so has the flow of medical talent gravitated, until the crowd already on the ground "views with alarm," to use a political phrase, the numbers of surgeons and embryo otolaryngologists, G. U.'s, and pediatrists, chiros, osteos, et al, and raises the cry,—"more country doctors."

Will they please rise and explain why they left the haystack themselves, and forsook the humble old one hoss shay of the hick town for the limousine or the straphanger's palsy?

Why are most of the "practices for sale" ads in the medical journals from men in towns of from five to fifteen hundred population? Why should the Governor of our great and prosperous state see fit to decry this lamentable shortage of physicians in the small town when "the deer peepul" do not seem to be aware of it? Does he see in the evident reflection in his remarks on the efficiency of the country doctor the salve that pays for the moral support of the group men, the clinic, or the cults?

That large cities will continue to grow is granted, but without the support of a healthy and prosperous rural population their continued prosperity must be questioned; likewise the grouping of medical talent therein must be limited.

The question is altogether one of supply and demand; when the small town offers a greater inducement to the young physician than the overcrowded practice in the city, there will be no lack of medical care for the country districts; when the farmer receives a better return for his labor, more people will stay on the farm, preferring the contentment of country life to the now alluring jazz and doubtful pay-roll of the city. When the silk shirt is discarded for the denim and overalls, the country districts will furnish the means to properly care for their sick.

If specialization has reached its zenith, then let the great American colleges prepare physicians, as well trained as science can do it, for service where there is greatest need.

For the medical colleges it will become, not only a problem of training more and better doctors, but of arranging fellowships to which all are eligible, both the recent interne, and the man who has, after leaving college, done his work among the proletariat and in the backwoods.

Today the road is barred to the latter class, to the preference of the over-trained but inexperienced product of the modern clinic.

There can be no relief effected by curtailing the training for students who wish to practice limited medicine, for that would defeat its purpose at the start. The non-medical cults are doing this kind of work, and are not satisfied with themselves. Already in several states they are clamoring at the doors of the legislatures for recognition, and for permission to do surgery, give anesthetics, and in every way simulate the trained medical man. They are placing their hordes of "graduates" in even the smaller towns until they have come to displace some of the confidence once given only to the "family physician."

There will always remain the emergency and bedside work in the rural communities that someone will have to do; but the physician who undertakes this must be well trained and have the co-operation of his grouped colleagues, or there will be still fewer men willing to attempt it.

Unless means are found for the establishment of small but well-equipped hospitals in some accessible point in every county, and unless these hospitals are accessible to all the qualified and reputable physicians living in the county, there will be no improvement in rural practice.

This plan necessarily involves the education of the public to the idea of guaranteeing financial support; and, as is well known, the small privately owned hospital is not a financial success; to quote Hamlet, "There's the rub."

Unless the problem is attacked intelligently and some solution is reached by the medical profession, the condition will be seized upon by some clever genius and used as an argument for State medicine.

What the rural physician needs is to wake up, forget petty jealousies, and perfect an organization that will establish co-operation in isolated districts, stimulate the lagging spirit in the local medical society, and cease being the unthanked advance agent of the privately controlled clinic.

The public is ever to be the judge, and when we as their servants display too much indecision, either from modesty or a lack of confidence, we cannot blame anyone but ourselves. Let the "general practitioner" assume all the dignity he is entitled to, take all the credit due him for service rendered, giving his professional confrère credit also, but not all the glory, and the people will continue to look to him for advice and medical care as in days gone by.

That the field for profitable practice in general medicine has become narrowed is an evident fact, and the question remains as yet unsolved; however, if we expect to get anywhere, we must row, and not be satisfied to drift.

If rural places are left vacant very long, the non-medical fraternity will soon fill them, their principal training being apparently along the line of specialized salesmanship, and each is a specialist after a fashion.

The average country physician to-day is as well or better equipped for anything in his line than the general practitioner in the city, but because of one-sided ethics and lack of hospital facilities his talent deteriorates from disuse.

We resent the imputation that we are either indifferent to our full responsibility or are in a measure incompetent; and, as there seems to be an over-crowded condition in the large cities among medical men, let the man who has not yet a following there, swallow his pride and come out to some nice modern little village with a golf club, but no hospital, and teach us some of the secrets of urban success. He will miss the support of the laboratory, and a few other attributes of city life, but though every village has its "Main Street" they are not all as bad as "Gopher Prairie," If he has the right stuff in him he will find appreciation of his talent. And, finally, when he is all through he perhaps will have accumulated a competency for his family, and perhaps the everlasting gratitude of his friends and neighbors; at least he will have the personal satisfaction of having lived a useful life, instead of deteriorating from inactivity.

THE DIAGNOSIS OF TUBERCULOSIS OF THE KIDNEY*

By Raymond L. Latchem, M.D., M.S.
(Urology)
SIOUX CITY, IOWA

Renal tuberculosis is not a common condition, but is so serious a lesion that consideration of the facts and findings that lead to the diagnosis may be profitable. The most common manifestation of renal tuberculosis is bladder irritability. With some exceptions, which will be referred to later, the first symptom noticed is increasing frequency of urination. Frequency of urination gradually becomes more marked and is attended, later, at variable periods, with dysuria and strangury. In brief, the symptoms are those that are ordinarily considered to indicate "cystitis," and they possess nothing distinctive to indicate the seriousness of the lesion, except that they steadily increase in severity and possess little tendency to remission. Also, attempts to treat the cystitis by the usual measures and medication either fail to give relief or cause a quick increase of severity of all symptoms.

The urine in every case with bladder symptoms will contain a variable amount of pus cells and will usually contain red blood cells. It is practically always acid in reaction and will usually give negative results on attempt at culture. However, it is possible, after centrifuging the urine, to demonstrate the tubercle bacillus in the majority of these cases and to establish the diagnosis of tuberculosis of the urinary tract. The utmost care must be used to avoid confusion with the smegma bacillus, which can be excluded by careful cleansing of the meatus and the securing of a catheterized specimen.

A smaller proportion of cases of renal tuberculosis occur without bladder symptoms and remain so for variable periods of time. The most of these are marked by pain in the renal area and usually possess pus or blood cells in the urine to call attention to the urinary tract. The majority of these cases, if allowed to progress, will eventually develop bladder symptoms. Still a smaller number may have as the first symptom an attack of hematuria, which is of variable duration and amount. The development of bladder symptoms may be deferred as long as five years from the time of hematuria, as in a case reported by Eisendrath.

A few cases may be marked by tumor formation in the renal area, and a failure to secure any history of previous or present bladder distress. Such cases form only a small proportion of the total number of closed pyonephroses, which result from the failure of any secretion from the affected kidney to reach the bladder because of early occlusion of the ureter by stricture formation. Either the occlusion occurred before the infection had involved the bladder or the bladder symptoms were so slight as to be disregarded in these cases. The more usual history is that there had been a previous period of bladder distress, which gradually disappeared only to be followed by the development of the mass in the renal area.

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*Presented at the annual meeting of the Sioux Valley Medical Association, held at Sioux Falls, S. D., June 14, 1922.

In addition to the symptoms directly referable to the urinary tract, there may be fever, chills, pallor, and weakness. These are usually due to absorption from the kidney as the drainage is interfered with by stricture formation in the ureter or from peri-nephritic involvement. Also, the symptoms of renal insufficiency will eventually develop in cases with bilateral involvement.

In general, the symptoms of cystitis either are present or have been present in all of these types, and demand a through urological investigation to determine the true pathological condition present. Confirmatory evidence of the diagnosis of tuberculous infection may be found in the epididymis, prostate, seminal vesicle, or elsewhere in the body. Demonstrable coincident infection occurs, according to Braasch, in the male genitalia in 73 per cent, in the lungs 27 per cent, and in the bones and glands 6 per cent. Whether renal tuberculosis occurs without coincident infection elsewhere in the body is questionable, though it is difficult at times to demonstrate any lesion except in the kidney. Radiograms reveal shadows in the affected kidney in about 20 per cent of these cases. These shadows vary from lobulated outlines of the entire kidney and definite shadows suggestive of renal calculi to small indefinite and irregular shadows in the kidney area. Such shadows are caused by the calcium deposit that occurs in the caseated areas, chiefly in the kidney but occasionally in the ureter.

The further investigation of the case when either tuberculous infection is surmised or proven is usually left to one trained in cystoscopic technic. The complete diagnosis requires localization of the infection and determination whether the condition is unilateral or bilateral. These cases represent the most difficult ones that are dealt with by the urologist because of the intense degree of bladder inflammation and irritability that may be present. Cystoscopy permits observation of the bladder, ureteral catheterization, and collection of urine from the kidney for examination, differential functional studies, and the making of pyelograms when necessary, and is the most valuable means of correct diagnosis. Simple inspection of the bladder may be all that is necessary when typical lesions, such as "golf hole" meatus or an inflamed meatus exuding thick pus are present, but more often catheterization of both ureters is desirable and necessary. The securing of specimens of urine direct from the kidney for microscopical and bacteriological examination and guinea-pig inoculation is of the utmost value in proving whether the condition is unilateral or bilateral. At times all the confirmatory evidence that can be derived from differential functional studies and from pyelography is required to establish the diagnosis.

Pyelography is not to be routinely employed, but is valuable in the identification of doubtful shadows in the renal area and in the identification of renal infection of doubtful nature. The changes in the pelvic outline caused by tuberculous infection differs from ordinary inflammatory dilatation in that they are less uniform. Changes suggestive of tuberculous infection are irregularity of outline and a variable degree of dilatation of the different calyces and necrotic areas extending from the calyx into the renal cortex. The outline of the ureter is characteristic when it shows alternate areas of constriction and dilatation and is more or less tortuous in its course.

Errors in differential diagnosis may arise in the differentiation of pyelonephritis, kidney stone, and bladder tumor. The clinical data and cystoscopic findings of bilateral pyelonephritis usually readily establish the diagnosis. Unilateral pyelonephritis may offer great difficulty, the diagnosis hinging on repeated examinations for the tubercle bacilli and other confirmatory evidence. It is the safest procedure to consider any case of unilateral infection as tuberculous until definitely proved otherwise. Confusion in diagnosis between kidney stone and tuberculosis arises because of the simulation of lithiasis by the calcium deposit, and would rarely occur if cystoscopy were performed and the urine examined for tubercle bacilli. Finally, an uncommon error at cystoscopic examination is made mistaking the proliferative papillomatous cystitis that may occur in any chronic cystitis for a malignant papilloma. If it is impossible to demonstrate the tubercle bacillus in the urine, it may be necessary to excise a portion of the tissue for microscopic examination in order to establish its identity.

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PROFESSOR ERNST FUCHS: AN APPRECIATION*

By Thomas McDavitt, M.D.

SAINT PAUL

It is a pleasurable duty to attempt to pay tribute to one of our great leaders. A great honor has been done our profession. Personally, in the flesh, we are permitted to hear one of the Masters of Art and again to hear words of wisdom and advice in reference to the many problems that arise in our daily work.

It is indeed fitting that a short résumé of the life-work of such a man should be of great value as a pattern, a guide. Called while yet a young man, with all the magnificent enthusiasm of youth at his command, to the chair of ophthalmology in a great university, for a generation he has given of his great mentality, of his great experience, to the benefit of humanity and his profession. The profusion of his mental gifts have been bestowed without limit upon all. With tongue and with pen has he welded together an influence for good upon his fellows unequalled by any of his contemporaries. Whose advice do we more often seek or more certainly find, than his, as we cull the pages of his great printed works? Since the middle eighties of the last century this bright light has shone resplendent with undimmed vigor.

Thirty years ago I had the pleasure of hearing his words of wisdom at that Vienna fountainhead of medical culture, and age has not dimmed nor time reduced his magnificent mentality, nor the simplicity of his manners and methods. The heritage of such a life for good cannot be reckoned, and in days to come we shall look back with pride that we had the privilege of personal intercourse with the master mind of our specialty. Contemplation of such a career can but fill us all with emulation. All cannot rise to such heights of success. Such gifts are not bestowed with profusion. A genius is not born every day.

After all, what is genius? One has said that genius is only the power for application, for hard work. Both true and untrue. Work is a great factor, but if there is not the magnificent brain, the power to cull the fact from the fanciful, the power to correlate all these facts, to place them in apposition so that they can be grasped by the pupil, the genius for teaching is wanting.

All of these gifts have been bestowed in profusion on our guest of the evening, and a half century of constant work has not blunted in the slightest his powerful grasp of his subject, nor his wonderful manner of imparting his fund of knowledge and experience. None can read his magnificent text-book and contemplate its thoroughness, its grasp of detail without wearying the reader, its completeness in all respects, without having an exalted idea of the unusual intellectual gifts of the author. The enchantment of distance pictures a man of note with personal qualities different from the average man. Personal contact reveals a modest man, a genial human man, a man's man, endowed with all the attributes and personalities of a mental guide, companion, and teacher. There is a peculiar facility of expression, an unusual ability of throwing light upon confused problems, and a remarkable power of causing the recipient of his words of wisdom and advice to grasp, retain, and use as a part of his own mental armamentarium the pearls and gems of his vast experience, which he gives out in such profusion.

Whence comes this unusual power, this ability to stand before his fellows for a generation as a pattern, a guide, with growing influence, without a peer, and accompanied by a feeling akin to adoration from the whole profession? It is God-given—it can proceed from no other source.

And now, in the plentitude of his powers, with his mental strength not one whit abated, with his vast accumulation of knowledge and experience at perfect command, he appears among us and gives us of his best. As the shadows of life lengthen, the sunshine of his mental existence, of his eternal influence as a guide and teacher, glows and glistens with renewed effulgence.

> "Lives of such men all remind us
> We can make our lives sublime,
> And departing leave behind us
> Foot-prints on the Sands of Time."

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*Presented at a banquet given in honor of Professor Fuchs by Minnesota Academy of Ophthalmology and Oto-Laryngology at Minneapolis Club, June 3, 1922.

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AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

In entertaining the American Academy of Ophthalmology and Oto-Laryngology the week of September 18th to 23rd the Twin Cities maintained the high standard established at the memorable American Medical Association meeting here a decade ago. The officers and visiting members were loud in their praises of the work of the local committee of arrangements not only for the efficient manner in which the details of the meetings and exhibits were handled but also for the entertainment provided.

This organization is unique in that admission to membership is based upon examination and only those applicants who have successfully passed the examinations of the American Board of Ophthalmic Examinations or the Oto-Laryngologic Board are admitted.

Last year, at the Philadelphia meeting the Academy introduced the inovation of a three day, intensive instruction course following the meeting. This met with such an enthusiastic response and was in every way so successful that it was continued this year and will doubtless remain a feature of these meetings.

Unusual interest was attached to the presence on the program of Professor Robert Barany of the eminent otologist, winner of the Noble Prize, formerly instructor in Vienna and at present Professor at the University of Upsala in Sweden. Professor Barany will remain in Minneapolis for two weeks or more following the meeting to give a special course of lectures and demonstrations.

The Academy will meet next year in Washington, D. C., under the Presidency of Dr. T. E. Carmody of Denver, Colorado.

THE PULMONARY SEQUELÆ OF INFLUENZA

For four years at least we have been studying influenza from many angles, and the pulmonary angle seems to be coming more and more into the foreground. Not a large number of cases have been reported in which tuberculosis developed rapidly from influenza. A sufficient number, however, of cases of pulmonary tuberculosis that were either incipient or in progress were evidently accelerated by an attack of influenza. The cases we have in mind are those in which pulmonary influenza was followed by a slight fibrosis in the bronchi, perhaps accompanied by a thickening of the mucosa. Those cases have gone on from year to year, and in many of them the fibrosis has continued to be an active source of study; out of the large number very few, comparatively, have developed a tuberculosis. It has been said, by those who are supposed to know, that this will come later, that our tuberculous patients will increase as the years go on, on account of their slowly invading fibrosis of the lung tissue, and that we are destined to have a return to the old nomenclature of a fibroid phthisis, or what we knew in earlier days as old-fashioned consumption, in which people coughed for years and years and eventually died from pulmonary exhaustion due to extension of the fibroid process. Many of these pulmonary cases, and particularly those which may ultimately develop into tuberculosis, can be avoided by the same methods as are employed in the candidate, that is, to free him from exposure to tuberculosis, keep him in an out-of-door life to keep up his power of resistance, and teach him to care for himself from a nutritional and respiratory point of view. Many investigators have dared to suggest that the majority of people have, at one time or another in their lives, a tuberculosis which becomes quiescent. A localized area only is involved and through a process of care and rest, food, and good air, this process becomes walled off and it becomes simply a pathological curiosity later in life, when the individual dies of something entirely different. Consequently, it is well to have these patients under surveillance and to keep in touch with our cases of influenzal fibrosis. It is essential, too, that they should not be in any way alarmed by the suggestion that they may develop a tuberculosis unless they take care of themselves, for it is commonly accepted that fear of tuberculosis lowers the resistant power of the individual; and only when the case is definitely and accurately established as that of an incipient tuberculosis should the individual or his family be informed of what it is necessary to do. Many well-known subjects of tuberculosis live out their expectancy and go through other diseases practically as any individual might, with an acute attack, a complexity of symptoms, and a restoration either from repair or elimination. But the few who are in danger should be accurately gauged, and studied sufficiently so that they may be under practically constant observation. The necessity of reporting such cases is a matter of acceptance, that is, not to report the simple fibroses, but to report those that present the chain of symptoms which indicate a tuberculous condition.

Another point that we should keep in mind is that of the recurrent attacks which are like influenza, those in which the original attack was sharp, in which the patient was sick for a few weeks and then gradually recovered, or recovered clinically, with only a few harsh sounds remaining behind; then, later, perhaps in months, there is a recurrent attack, less intense and of shorter duration, and, subsequently, a third or fourth attack, and ultimately a recovery. These are the people who are likely to be the subjects of anxiety and fear because they cough and have an oppression in their breathing, and because some remote member of the family, with whom they are not in contact, may have had tuberculosis. Undoubtedly many of these patients recover entirely, and get back their needed pulmonary capacity. But it is the few, those who are in tuberculous communities and who associate with tuberculous people, who need advice, aid, and, in some instances, sharp warnings.

One feature in connection with this subject is the future of the tuberculosis sanatoriums. These institutions are, for the most part, in their infancy, although very good copies have been made of well-organized and well-established institutions. But the fact remains that many people who are obliged to go to these sanatoriums complain. Perhaps they complain because they are complainers, at least they find fault with the crowded condition of the institution, the fact that there are not beds enough out-of-doors, and they complain, perhaps particularly, in regard to their food. For the present time this is unavoidable, for it is almost impossible to get housekeepers or cooks who are sufficiently skilled in the preparation of foods or the presentation of foods in an appetizing and pleasing manner. Most of the foodstuffs are dumped on trays without any regard for the esthetic side of the table, and it would pay the state to specialize in foods for the tuberculous. From every angle these people ought to be made as comfortable as the state of their finances will permit; and the element of hope, faith, and homelike surroundings should be featured so as to remove the element of fear from the individual who is standing on the edge of a precipice, not knowing whether he is going to fall into the abyss of tuberculosis or whether he is going back home restored in health.

EPILEPSY, BLINDNESS, AND PSYCHOSIS

These three disorders are looming up as danger signals for the man who sells moonshine. Although this may be, at the time, a boot-legger's paradise, his adventure in boot-legging is to be followed by some very definite diseases. The man who indulges frequently in impure liquor is likely at any time to have a fit. If he does not happen to have a nervous system adjusted to the epileptic attack he may have a temporary or a permanent blindness. Many cases have been recorded, through both the medical and the lay press, of sudden attacks of blindness from the over use of "moonshine" poison. Fortunately, a few are able to resist permanent blindness, but many cases of temporary blindness, of from one to two weeks, have been followed by either complete or incomplete recovery. These cases are reasonably easy to diagnose, that is, as to whether the patients are going to have a complete or temporary blindness; but they very rarely reach the physician because of the other physical symptoms which accompany and are a result of the "moonshine" attack. If a man has a temporary blindness and then resorts again to his ill-favored tipple, he is quite likely to have another attack, and there are but few who can withstand many attacks of "moonshine" retinitis or neuritis.

Then comes the man who suddenly becomes insane. He differs from the old type of alcoholic. He may have been a man of good habits, perhaps has not drank for twenty years, when suddenly the temptation is presented and he consumes a moderate or an excessive amount of "moonshine." The result is that he suddenly develops the typical signs of an acute delirium and resembles in many respects the old-style case in which delirium became the furious type followed by a complete stupor and, finally, by a slow and gradually improving psychosis. He may get entirely well, although he is sick, and seriously so, for several weeks. This, however, is no excuse for him to again indulge his alcoholic tendencies. It ought thoroughly to alarm him, and, at least, his physician should give him a very serious exposition of the dangers which may follow. Sometimes the man becomes absolutely and totally irresponsible. He has neither mind nor memory of the events which accompanied and followed his drinking bout, although he is able to put up a good defense and may at times simply present the nervous element of anxiety, fear, or suspicion. But, if opposed, he develops into a wild animal, and his strength is so unusual that nothing will restrain him,—either mechanically or chemically; yet, when he once appreciates that he is under restraint or under arrest, or under commitment to a state institution, he may within two weeks regain his former mentality, without leaving a trace of his psychosis behind. These cases are exceptional, but they are likely to occur, and the man, or men, as is usually necessary, called upon to restrain this patient, created by the boot-legger, are in danger, and sometimes it is necessary to defend oneself in order to avoid severe injury. There is no fury or furor that is like that of alcoholic excitement, particularly if the alcohol is combined with fusel oil, wood alcohol, and other poisons.

It seems to the writer that so far we have not solved the problem of how to prohibit the excessive use of liquor. We have not been able to regulate it satisfactorily and, although the prohibitionist tells us that conditions are improving all the time, the daily history of various parts of the country indicates that there is more drinking, more nervous disease, and more psychosis than we had before prohibition went into effect. Doubtless it will take many years to recover anything like our normal balance in the consumption of alcohol, and it would seem reasonable to assume that the manufacturer of non-poisonous liquor, graded and sold under Government control would be a safeguard against many of our neuroses, psychoses, and somatic disorders.

GROUP MEDICINE AND ITS PRESS AGENT

Our attention has been called to the September number of the *Woman's Home Companion*, in which Dr. Thomas H. Halsted has written an article on "The Right to Good Health," wherein he outlines group clinics for pay patients in a very attractive manner. This is his second article. The first was on the development of the medical practice from fifty years ago, when the family doctor was supposed to know all that was known in medicine and surgery. And he goes on to show how revolutionary changes have taken place and that out of these changes group clinics have been evolved.

The choice bit of advertising in the above-mentioned magazine says that they have a list of more than one hundred clinics and will send, on request, the names and addresses of those in any state. To the men outside of the group clinics this seems like very good advertising, and it is probably the outcome of an organization, which took place in St. Louis, by many of the clinics of the country. They now have their own officers and representatives, and they expect to hold regular meetings, which are evidently called, as meetings of this kind are, for consultation, for expansion, perhaps, and for everything that pertains to group medicine. In the article mentioned, too, there is one quotation which deserves notice, and that is, "It derives its support entirely from the fees of the patients, and consequently should not be confused with free dispensaries and free clinics, founded for the care of charity patients, which are supported by voluntary or municipal contributions or endowments. A group clinic is, therefore, an institution for the care of pay patients, but, like the private physician, renders free or part free service to many deserving but financially unfortunate persons." This sort of thing does not sound very well to the men on the outside, and perhaps this article may not be very cordially received by the old-fashioned doctors. The group clinics have increased in number, however, and are scattered practically all over the country, frequently in the large cities, but commonly in the cities of moderate size. The motive of group clinics is, in the main, a good one in that it intends to give team-work and division of labor with each man proficient in his branch. Whether it will definitely interfere with the medical practitioner is something which cannot be determined until many years have passed. That it is popular in many instances is not doubted. That it is unpopular in other instances cannot be disputed, but so is the average doctor. In the instance of several group clinics being formed in one city, the specialist who maintains an attitude of indifference or, for his own protection, keeps out of a clinic with the expectation of reaping his friends among those who are out of sympathy with the group is in rather a precarious position. And although there may be bitterness and dissatisfaction with the present existing arrangements, the whole situation must be fought out intelligently, and behind it all must be the man who is able to deliver a scientific opinion and give sound advice, as well as to keep in touch with the individual.

In many of these clinics the men decline to practice outside of their clinic building. That, of course, relieves them of a good deal of personal responsibility, and in a measure is making it a success as a business venture. Consequently, there must always be someone who is willing to do the work which ordinarily is done by the general practitioner, and he must prepare himself, keep in touch with medical events, and be ready for almost any emergency.

BOOK NOTICES

Vice and Health Problems: Their Solutions. By John Clarence Funk, M.A., LL.B., connected with the U. S. Health Service. Cloth, $1.50. Pp. 174. Philadelphia: J. B. Lippincott & Co., 1921.

The author evidently has had a large acquaintance with vice and the various and multiple ways in which its victims are made. Statistics are given showing the alarming increase of venereal diseases, and the great toll of sorrows, disabilities and deaths caused thereby.

The necessity for prevention and education is emphasized. Valuable suggestions are given, how to combat prostitution; the medical and legal measures available, welfare, and rehabilitation offered; also the reliance and help through good government.

The book is of great practical value and should be read by all citizens who are interested in the elimination of vice and the promotion of health and social betterment of the people, as well as by members of the medical profession, because of the many suggestions offered for active endeavor to protect the health of our citizens.

—Mary Snoddy Whetstone, M.D.

NEWS ITEMS

Dr. Earl R. Crow has moved from Franklin to Green Isle.

Dr. J. T. Bowers has moved from Lake City (Minn.) to River Falls, Wis.

Dr. Edwin O. Swanson, of St. Paul, was married on Sept. 14 to Miss May Ludke, of Amery, Wis.

The annual meeting of the Minnesota State Registered Nurses meets in Rochester on Oct. 17 to 20, inclusive.

Dr. R. H. Monahan, of Minneapolis, has accepted the position of surgical assistant of Dr. Stevens of Menomonie, Wis.

The plans for the Veterans' Hospital of the Tenth District at St. Cloud have been completed and call for nineteen buildings.

Dr. O. J. Seifert, of New Ulm, leaves this week for Europe. He intends to specialize in diseases of women and children for six months.

Dr. Egdahl, of Madison, Wis., has assumed his duties as Director of the Public Health Laboratories of North Dakota, with headquarters at the State University at Grand Forks.

Dr. Harold T. Nesbit, of Rochester, was married last month to Miss Dorothy D. Tennant, of Lake City. Dr. Nesbit is a graduate of the Medical School of the University of Minnesota.

The Minnesota Conference of Social Workers held their annual meeting at Glenwood last month. Dr. E. J. Huenekens, of Minneapolis, made the principal address before the Conference.

Dr. Hugh Reynolds, City Health Officer of Hibbing, offered to accept a reduction in his salary to assist in meeting a city financial emergency. The City Council refused to accept Dr. Reynolds' offer.

The Board of Welfare of Minneapolis contemplate making an appropriation of $35,000 to aid the County in the conversion of the quarantine hospital in St. Louis Park into a hospital for tuberculous patients.

The Red River Valley Medical Society held its monthly meeting at Oakland Park Sanatorium last month, when papers were presented by Dr.

Emil Geist, of Minneapolis, and Dr. F. F. Callahan, of Pokegama.

Dr. T. S. Kammerling has returned from a year's postgraduate study in eye, ear, nose, and throat work in New York and Chicago, and has located in Sioux Falls, S. D., where he will practice in this specialty exclusively.

The City Commissioners of Huron, S. D., voted unanimously last month that the city would co-operate with the State Board of Health and the County Commissioners in putting the maternity bill in operation in Beadle County.

The Nopeming State Tuberculosis Sanatorium, near Duluth, graduated its sixth class of nurses last month. The class contained six graduates. Dr. E. L. Tuohy, president of the Sanatorium Commission, presided at the graduating exercises.

Dr. P. B. Jenkins, of Waubay, S. D., head of of the U. S. public health service in that state, is making diligent efforts to have South Dakota obtain all the advantages offered the different states under the Sheppard-Towner bill, the so-called national maternity bill.

Dr. Wilwerding Moire, of Minneapolis, was married last month to Miss Blanche Kummer, of Piedmont, Calif. Dr. Moire is a recent graduate of the University of Minnesota Medical School, and served in the medical corps in Siberia during the World War.

The Federal Children's Bureau, in its late report on child welfare conditions in North Dakota, marks nineteen points at which changes should be made by legislation. The report will show at least the needs of the state in this line, and it may be effective, for the needs in this line are imperative.

The country papers that come to our desk show an ever-increasing number of attendants at the free clinics given in all parts of the Northwest. For instance, the statement is made that at a baby clinic recently given at a cross-roads farm 85 babies were examined by the county nurse and a Twin City specialist.

The Commonwealth Fund has been established by a group of philanthropists to cary on a study in health conditions for five years in three centers in cities each with a population from 15,000 to 25,000 people with an infant death rate of not less than 10 per thousand. St. Cloud doctors have joined to make St. Cloud one of these "Laboratory Cities."

The new $50,000 Community Hospital building at Hutchinson was dedicated last month. The hospital has twenty-one beds, eight being in private rooms. Various organizations in Hutchinson furnished different rooms, the private rooms being dedicated in memory of relatives of the donors; and the wards were equipped by individuals or societies.

Dr. E. W. Hayes, a graduate of the Medical School of the University of Minnesota (Class of 1913) and a specialist in tuberculosis, has moved from Banning, Calif., to Monrovia, Calif., where he has become associated in tuberculosis work with Drs. Kalb, Kirschner, Putnam and Gleeten. They have just organized the Monrovia Clinic for the care and treatment of all forms of tuberculosis.

Dr. James Grassick, editor of the *Pennant*, the organ of the North Dakota Anti-Tuberculosis Association, in his leader in the September issue, says the North Dakota climate is the best climate in the world for the North Dakota tuberculous patient, whom he advises to stay at home. He ends his peroration of the climate of the state in the excellent French he uses so fluently in his daily talk: "Ye canna beat it."

HOSPITAL DIETITIAN WANTS POSITION

An experienced dietitian, capable of taking charge of the dietetic work in any hospital, desires such work in the Twin Cities. Can give the best of references. Address 278, care of this office.

PHYSICIAN WANTED

At Hitterdal, Minn., a thriving town of 300 population in the potato and mixed farming district of West Central Minnesota. Scandinavian population. Have a drug-store. For full information write Adolph Herseth, Pres. Commercial Club.

X-RAY TECHNICIAN WANTS AFTERNOON WORK

An *x*-ray technician with experience in large hospitals desires afternoon work in Minneapolis or St. Paul. Best of references. Address 279, care of this office.

POSITION IN PHYSICIAN'S OFFICE AS NURSE AND SECRETARY WANTED

Applicant is a graduate of a Philadelphia hospital training-school, and has had two years' experience as an industrial nurse with a Minneapolis physician, doing all the office *x*-ray work. Will go out of the city. Best of references. Address 262, care of this office.

PHYSICIAN WANTED

North Dakota town of 300 population, fine territory and good crops. Nice office rooms. Good man can make from $7,000 to $9,000 a year. Must be able to locate at once. Address 291, care of this office.

AUTO, VICTOR WALL PLATE, ETC., FOR SALE

I offer for sale the following things left by my late husband: A 1920 B-30 Model Chevrolet 4-passenger coupe (cost $2,000 and has been run very little) for $850; a Victor Wall Plate (cost $100—in perfect condition), for $40; and a lot of homeopathic medicines very cheap. Address Mrs. O. W. Fisher, 4050 Blaisdell Ave., Minneapolis.

SURGICAL NURSE WANTS POSITION

A surgical nurse with two years' experience in a city office, aged 29, desires position with up-to-date physician as office assistant. Experienced anesthetist; can do bookkeeping, laboratory work, etc.; until recently superintendent of a hospital near the Twin Cities. Best of references. Salary moderate if associations are congenial. Address 286, care of this office.

PRACTICE FOR SALE

I offer for sale my practice of about $6,000 in a South Dakota town of 1,000, with only one other physician and two nearby towns with no physician; county seat and large country practice; good schools, churches, sewerage, water, lights, modern three-room office suite. Value increased by surgery. Thirty miles from excellent hospital; on two auto trails. Will sell cheap. Leaving to specialize. Address 288, care of this office.

SOUTH DAKOTA PRACTICE FOR SALE

A $6,000 practice in modern town of 1,200 in eastern South Dakota, one other physician. Practice can be increased by surgery. Must be sold at once, will sell at your own price and terms. Will stand investigation. Going to specialize. Address 289, care this office.

PRACTICE IN NORTH DAKOTA FOR SALE

In a city of 1,000, general and surgical practice. Average receipts for the past four years, $18,000. A $12,000 home and $3,000 equipment included. Takes $6,000 cash to handle. $6,000 on home and balance on terms, $3,000. Going to California. Address 272, care this office.

MINNESOTA PRACTICE FOR SALE

A well-established $8,000 practice, 35 miles from the Twin Cities is offered for sale for price of residence and office. Population 1,200 with rich and thickly settled farming community, mostly of German descent. Good collections. Reason for selling, specializing. Address 281, care of this office.

PRACTICE FOR SALE IN MINNESOTA

A practice in a Minnesota village of 600, in a rich section of the state. Competition 15, 18, and 22 miles distant. Territory has averaged $5,000 to $8,000. Collections good. Practice and residence and office combined are offered at a bargain. Address 283, care of this office.

EXCELLENT LOCATION IN MINNEAPOLIS FOR PHYSICIAN

Best transient office in city. Downtown, easily accessible, excellent space, well arranged, finely furnished, complete equipment, no competition. Located on a busy corner; and a $500 per month cash business can be done from the start. For a physician who wishes to locate in the city and make more than a living from the start this office and practice cannot be beat. Present lessee has entered government service. Will sell or lease all or part of furniture and equipment. Address 285, care of this office.

LABORATORY TECHNICIAN WANTS POSITION

University senior with special work in Bacteriology and Biochemistry with actual experience in clinical work, desires position in Twin Cities. Address 290, care of this office.

YOUNG PHYSICIAN WANTED

One who has had hospital experience is wanted for salaried position in a small town in South Dakota on coast line of Milwaukee Railway. Address 284, care of this office.

POSITION IN DOCTOR'S OR DENTIST'S OFFICE WANTED

By an experienced young woman of good address; a fair stenographer; and a splendid collector. Moderate wages wanted; best of services rendered. Address 273, care of this office.

PRACTICE FOR SALE

A Minnesota practice of $7,100 annually, in town of 3,300, modern in every way. Will sell for price of equipment. Reason for leaving, specializing. Excellent opportunity for young man or man doing surgery. Address 280, care of this office.

UNOPPOSED PRACTICE FOR SALE

In a good town of 450 in North Dakota, with fine high school and churches. Nearest physicians 16, 17, and 26 miles. Practice runs from $500 to $600 a month. Have practiced here fourteen years. Crops good. Will give full introduction. Address 274, care of this office.

LOCATION WANTED

A young doctor, graduate of a Class A school with one year's practice in a hospital and one year with a general surgeon, wants a location in a town of 300 to 1,000 population, preferably in North Dakota. Will buy office equipment. Address 275, care of this office.

PHYSICIAN'S RESIDENCE AND PRACTICE FOR SALE IN ST. PAUL

The widow of a recently deceased physician in St. Paul offers her home, etc., for sale. House has six living and two office rooms and is thoroughly modern. It is located in a rapidly growing part of the city with splendid street car service. A new physician in this location can start with a good cash practice and build up rapidly. Address 282 care of this office.

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SYPHILIS IN GENERAL PRACTICE*

By A. A. McLaurin, A.B., M.D.
PIERRE, SOUTH DAKOTA

In presenting this subject I have no startling facts to offer. The syphilitic, like the poor, we have always with us. The successful control of syphilis depends upon early diagnosis and early, efficient treatment. If we do our part in the campaign against this disease we must reconstruct most of our older ideas in regard to syphilis.

When we think of the primary lesion we think of the Hunterian chancre. This is true because, as medical students, we were taught that syphilis begins with a typical lesion. We were also taught that the incubation period was six weeks and the infection was localized, the invasion of the general system occurring with the rash. In rabbits, experimentally inoculated, the treponemæ pallidæ have been isolated from the blood on the seventh day and as late as the thirtieth day. They have been found in the lymph nodes three days after inoculation and twenty-six days before the development of a primary lesion. That a similar early invasion occurs in man has been proven by various workers. Engman[1] says, "It is well known through the investigations of Metchnikoff and Roux, Neisser, and others that probably within ten days after the initial inoculation the virus of syphilis becomes generally distributed to the various tissues of the body and antedates the objective appearance of the first localization, called the chancre, by one or two weeks." Klauder[2] believes that the infection becomes generalized a few hours after the inoculation. In the light of these facts it is evident we are dealing with a treponemia at the time the primary lesion develops.

In considering the primary lesion, let us remember that the incubation period varies from fifteen to forty-five days. Extremes of ten and ninety days are on record. While recent experimental work indicates that reinfection is possible, auto-inoculation is of frequent occurrence and multiple lesions are common. Hazen[3] says, "A point that cannot be too strongly emphasized is that a chancre may be absolutely atypical, and that it may last but a day or two. Every syphilologist believes that absolutely every genital abrasion or sore should be suspected as syphilitic until proven otherwise. The diagnosis of genital chancre should be made through laboratory and not through clinical evidence." Unless there is considerable destruction of tissue the healed chancre leaves no permanent scar. It may be located on any part of the external genitals or even on any part of the body. It is generally estimated that about eight per cent of syphilitics receive their infection through extra-genital lesions. This estimate is probably too low. In older people a chancre of the face may easily be mistaken for epithelioma and the same error may occur with chancre on the cervix. It would appear in the light of present-day knowledge that neither the incubation period, the appearance of the lesion, nor its duration offers very much aid in diagnosis.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

We all appreciate the great help which the laboratory gives in the diagnosis of this disease. In the secondary stage the Wassermann is positive in practically 100 per cent of cases. This test may be a great help or a great hindrance and the source of much confusion. If we would recognize the true limitations of laboratory methods our progress in the diagnosis of syphilis would be much more rapid. Sargent[4] calls our attention to the fact that there are five stages when syphilitics may be expected to give a negative Wassermann. These are (1) very early syphilis; (2) malignant syphilis; (3) syphilitics extremely ill or moribund; (4) untreated syphilitics whose resistance has been sufficient to suppress their disease; and (5) syphilitics who have had sufficient treatment to suppress their infection either temporarily or permanently.

Craig[4] has demonstrated beyond question that in individuals whose syphilis is apparently latent the Wassermann frequently varies from month to month. One month it may be negative, two plus the second month, four plus the third month, while by the sixth month it may again become negative. But the laboratory offers another method of diagnosis which is comparatively simple and accurate and can be used as soon as the primary lesions appear. This is the dark-field method. Klauder[2] found it positive in 93.9 per cent of cases during the first ten days of the chancre. This test offers our best hope of an early diagnosis and should be used in every case. When we learn not to use caustics on primary lesions the use of this method of diagnosis will be greatly increased. In this connection Scott[5] and Pearson make the following statement: "It cannot be too strongly impressed upon the general practitioner, who is the man most likely to see a case of syphilis at its onset, that an immediate diagnosis and the institution of treatment before a positive blood Wassermann can be obtained is the only certain method of preventing the late manifestations of syphilis, particularly neurosyphilis. To wait for a positive blood Wassermann before starting treatment is, in most cases, criminal, and it might almost be said that it is better to treat two cases of suspected primary syphilis which are not syphilis, than to allow one case to develop neurosyphilis."

We must all admit that the development of a positive Wassermann in a primary syphilitic marks the beginning of an entirely different stage in the disease so far as treatment is concerned. We all know how, in past years, the clinical diagnosis of pulmonary tuberculosis was delayed while we were searching for the bacilli in the sputum. The same danger confronts us now in waiting for a positive Wassermann. It may be said that many of us cannot apply the dark-field method. Then let us refer the patient to someone who can. Hazen[3] says: "Any physician who fails to have patients examined by this method is guilty of moral malpractice." We refer our cases of acute appendicitis to the surgeon. Is there anyone here who would prefer a possible chancre to an acute appendix? I think not. In justice to our patients we owe them the best service which the community and the state can give. Gelhorn[6] calls our attention to these points in syphilis in women: "The chancre in women is smaller than in men; the primary lesion clears up more rapidly; fever and anemia are more common; and an obscure cachexia in a young woman should make us suspect syphilis as the underlying cause."

The most of us were taught that the secondary stage is characterized by the presence of a rash and mucous patches, yet, in our series of 50 cases seen in the last four years, only three patients had a rash, and mucous patches were present in an equal number. The rash is often faint and is not seen, while the mucous patches seldom attract the patient's attention. The adenopathy may be very slight or entirely absent. We need to remind ourselves that in the early stages syphilis is a general infection. The work of Warthin, at Ann Arbor, has proven by postmortem examination that the treponema pallida is found more often in the heart than in the liver. A number of competent observers have noted in the secondary stage unmistakable evidences of myocardial disease, as tachycardia, extrasystoles, and numerous other irregularities of tone rhythm and force, all of which disappear under vigorous specific treatment. That cardiac symptoms are not infrequent is proven by the work of Carrol[7] and Brooks, who analyzed 200 cases of proven syphilis of which 164 reported for advice because of complaints of circulatory discrepancies. In the past our attention has been directed to the skin, mouth, and lymphatic lesions to such an extent that we have overlooked the cardiac condition. Every lesion of the aortic valves should suggest the possibility of syphilis. Many of these cases show marked improvement under specific therapy. The work of Mills[8] has proven that syphilis plays a very much more important part in gastro-intestinal pathology than is generally supposed. The work of Roberts[9] proves that many so-called tuberculous joints heal promptly when potassium iodide and mercury are given.

Syphilis of the central nervous system calls to our mind the Argyll-Robertson pupil and the absence of the knee jerk. But these are late signs and indicate destroyed tissue. Knee jerks which are unequal or exaggerated appear much earlier, and Morrison[10] calls our attention to the fact that the ankle jerk often disappears in tabes much earlier than does the knee jerk. Pupils which are unequal in size, irregular, or react to light in different degrees often precede, by a long period, other clinical evidences of tabes. Statistics indicate that over eight per cent of tabetics have been operated on for abdominal pain before the condition of the nervous system was discovered. Morrison[10] analyzed one hundred cases of neurosyphilis in which abdominal pain was the first complaint in 50 per cent, while the complaint of backache was almost as frequent. It is up to us to remember that syphilis is a general infection and that the central nervous system is invaded in the early stages of the disease. In the primary stage definite changes in the spinal fluid are found in from 25 to 35 per cent of cases.

The treatment of syphilis is beyond the scope of this paper, but, in justice to every patient seen with a primary lesion whose Wassermann has not yet become positive, I wish to call your attention to the work of Sargant,[4] who has proven that six injections of arsenic plus four months intensive use of mercury is not sufficient effectually to cure in all cases.

CONCLUSION

1. The treponema pallida has invaded the lymph and blood streams before the primary lesion develops.
2. Any lesion of the external genitalia, regardless of its appearance or duration, should be considered syphilitic until proven otherwise.
3. Caustic applied to these lesions delays the diagnosis and exposes the patient to unnecessary danger.

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DISCUSSION

Dr. Franklin R. Wright (Minneapolis, Minn.): The discussion of syphilis is one that cannot be undertaken in a few minutes, nor can an essayist be expected, in a short paper, to cover so large a field. There are two or three points which I think should be emphasized.

1. Our text-books do not emphasize the fact that the virus of syphilis does not live in the blood stream. Its normal habitat is the lymphatic vessels. The serum of the tissues is very infectious; the blood is not. It is a rarity to be able to find spirochetæ in serum drawn directly from a blood vessel.

2. The age of early syphilis can be accurately told by invasion of the lymphatics. When an individual infects himself about the genitals the initial lesion will appear at the point of infection three weeks, or twenty-one days, later; between the twenty-eighth and thirty-fifth days the lymphatic glands in one groin undergo hyperplasia. They become enlarged and are painless and freely movable under the skin. They are not inflammatory glands. Between the thirty-fifth and forty-second days the glands in the opposite groin undergo the same process. At the forty-ninth day the epitrochlears and the superficial glands in the neck become palpable. On the fifty-sixth day general invasion of the blood stream will take place, and the eruption appears on the body. If a patient comes in who has initial lesions with palpable glands in one groin only, we say his syphilis is between twenty-eight and thirty-five days old. If he has palpable glands in both groins and none at the neck or in the elbows, we know the infection is between the thirty-fifth and forty-second days. When the glands are to be found in both groins and the neck we know it must be that forty-nine days have elapsed since infection.

As far as the Wassermann reaction is concerned, I believe that in practice it is apt to cause almost as much trouble as it does good. Practitioners are very prone to say that the absence of a Wassermann reaction means that this patient cannot possibly have syphilis. On the other hand, they will state that the presence of a Wassermann reaction is absolute proof that the patient is syphilitic. This is not always true. They overlook the fact that the laboratory may make an error, or that blood which is sent by mail may become positive during transit. The following case illustrates this point:

The wife of a man who had tabes developed some trouble. The man took her to his family physician, who, knowing that tabes meant syphilis, drew a specimen of blood and mailed it on an over-night journey to Chicago. The report came back promptly that the blood was positive. The young woman was then brought to Minneapolis. She had no symptoms of lues. I drew her blood at nine o'clock in the morning, sent it to the laboratory, and at four in the afternoon received a report that it was negative. When these people came to my office to get the report they were somewhat astounded to have a negative report. They could not believe it, so I drew blood to send to another laboratory. I called the laboratory by phone, and they asked me not to send the blood until morning. This specimen of blood stood in my office over night, was sent to the laboratory the first thing next morning, and at noon we had a report that it was positive. This I did not believe, and drew another specimen and sent it to the same laboratory for immediate examination. It was examined that afternoon by the same technician with the same reagents which were used in the examination of the specimen of that morning, and we got a negative report. When we compared results of these four examinations of the same individual's blood, all made within forty-eight hours, we found that the two which were made from specimens of fresh blood were both negative, while the two which were made from blood which was twelve hours old, one having stood in my office and one having been in the mail twelve hours, were both positive. Therefore, I did not put any dependence on the reaction of blood which had been allowed to stand twelve hours, particularly in the warm weather. I believe that, if a specimen is to be sent by mail to a laboratory, a large quantity of blood should be drawn, allowed to stand and clot, and the serum poured off, and that only sent to the laboratory.

3. The question of neurological syphilis is an interesting one. In 1900, when I was studying in Vienna, Professor Neumann taught that, although we did not know the cause of syphilis, it ran a course ending in immunity similar to other infectious diseases. Therefore, it must be caused by some virus similar to other infectious diseases. He taught, further, that there must be three strains of this virus; that a patient who is infected with one variety developed symptoms of the skin and mucous membrane; another patient with another form developed gummata and bone lesions; and the third form had a predilection for the nervous system, and the patient infected with it would develop nervous lesions. He made these statements from clinical observations. The first patient has profuse lesions of the skin and mucous membrane, and rarely develops either gummata or nervous lesions, while the patient who developed gummata rarely or never developed syphilis of the nervous system. The same may be said of the patient who develops symptoms of the nervous system. This patient never develops gummata or severe skin lesions.

Different observers at times have reported cases from the same source of infection developing the same character of lesions. One man reports as high as eight cases of neurosyphilis from the same source of infection. We are at the present time treating two patients with tabes who were infected ten years ago from the same source.

4. Regarding the rash on the skin and mucous patches on the mucous membrane: The reason the essayist did not find mucous patches accompanying macular eruption on the skin is probably because the slight increased redness necessary to cause a macule on the skin does not show at all on the normally red mucous membrane. The mucous patches are really a papule. Here we get a subepithelial infiltration. The normally transparent epithelium overlying this thickened area undergoes hyalin degeneration, becomes opaque, and is clearly visible.

Dr. C. V. Templeton (Woonsocket): In discussing the subject of syphilis I would like to report a case that has recently come under my observation which I believe to be a case of syphilis of very long standing.

About a year ago a woman, fifty-three years of age at that time, came under my care who at the age of seventeen years began to have skin eruptions over the body. When first seeing the patient, judging from the appearance of her face and parts of the body exposed, I thought that at some time she might have been severely burned. The face was a mass of scar tissue. The cartilaginous portion of the bone of the nose was gone. The soft palate was gone. I began an investigation which led me to believe that something had been seriously wrong with this patient for a number of years. I took a specimen of her blood and sent it to the state laboratory at Vermilion for examination, and they reported a positive Wassermann. According to one of our doctors, who has just spoken, the laboratory finding would not be of much value in making a diagnosis because it took more than twelve hours to get the blood to the laboratory for examination. At the time I first saw this patient she had numerous sores on her face. There had been ulceration after ulceration on the face and arms and legs, making them a mass of scar tissue. I first thought of using salvarsan in some form or other, either neosalvarsan or silver salvarsan; but had trouble in finding a vein large enough for its administration. All veins were obliterated by scar tissue about both elbows. I even had difficulty in getting enough blood to have the Wassermann test made. Under the mercury and potassium iodide treatment she has improved materially. She had some diseased bone involving one arm and one leg, which I chiseled out a short time ago. I removed a considerable area of necrotic bone from one of the tibias. There is diseased bone there yet, not necrotic, but lacking in blood supply; it had an ivory hardness to it. I did not chisel that out, but everything that was necrotic.

As this case was interesting to me I thought it would possibly interest a number of others in view of the fact of its long standing. This woman is now fifty-four years of age, and this trouble began when she was seventeen. She has never been married, and I have every reason to believe that if this is a case of acquired syphilis, it was contracted innocently. If syphilis at all, I believe it to be a case of hereditary syphilis; however, this is a matter of speculation. The question arises, if it is hereditary syphilis, would it not have manifested itself before the patient was seventeen years of age? Prior to that time it seems she was free from eruption of any kind. But subsequent to that time she has been subject to constantly recurring eruptions involving her face and body, which have made her face and parts of the body one large scar. She is still suffering with ulcers located on the face and both legs. She has a large ulcer involving the tibial bone on one leg half way between the knee and ankle of twenty years' standing. From this site I chiseled the necrotic bone of which I have just spoken, and the wound seems to be making some progress towards repair.

What is the diagnosis? Is she a syphilitic? The case has all the earmarks of the old scrofula described in text-books a number of years ago, but which is now generally conceded to be either tuberculous or syphilitic. Altogether, I have had her blood tested four times. The last test the laboratory reported four plus positive. This statement gives you briefly the history of the case, its outstanding features and my experience thus far in its treatment. As I have said, under mercury and iodide of potassium the patient has made considerable improvement. There is some promise that these sores will heal, and the patient will be made more comfortable during the remainder of her life.

Dr. J. C. Ohlmacher (Vermilion): I want to say a few words about the Wassermann test. Dr. Wright called attention to the fact that there was considerable variance in the findings. A number of years ago I presented a paper before this Association in which I called attention to the very fact Dr. Wright mentioned, namely, that blood sent away across the country, particularly in the summer, becomes hemolyzed, and such blood gives anticomplementary reactions which are interpreted as positive tests. We have instituted anticomplementary control in our cases, and you will be surprised at the indefinite reports we give out in which we get positive reactions in our controls. On the basis of that I have written to numerous physicians asking them to send serum to the laboratory, believing that the hemolyzed products of the blood are largely responsible for these false positive reactions.

Dr. McLaurin (closing): I think we are especially fortunate in having Dr. Wright with us, who has helped me out in various troubles in genito-urinary work.

The point I had hoped to make in the paper was this: Every lesion should be looked upon as syphilitic until proven otherwise. This applies not only to the genitals but to the extragenital lesions.

As to the point brought out by Dr. Templeton: I will say that people with large veins, as a rule, never get syphilis.

CAUSES AND CARE OF ARTERIAL HYPERTENSION*

By J. G. Cross, M.D.
MINNEAPOLIS, MINNESOTA

Our fathers in medicine were marvelously skilled in palpating the pulse, a faculty which we of this generation have neglected to cultivate. Increased arterial tension was recognized by its symptoms and by the resistance to obliteration of the pulse by the examining finger. As long ago as Richard Bright's time (1827) the occurrence of arterial hypertension was recorded in renal disease.

The actual clinical investigation of hypertension, especially its earlier stages, has been made easier since the advent of instruments for taking the blood pressure. It is now known that high blood pressure is not a disease by itself, that it occurs under a variety of conditions and in association with various other clinical states; that it does not invariably accompany either renal disease, arteriosclerosis, or cardiac affections.

MECHANISM OF BLOOD PRESSURE VARIATIONS

The tension of the blood stream in the arteries where it may be commonly measured by the sphygmomanometer is the result of variable factors:

1. The force of the heart-beat, its frequency, and the volume of blood forced into the artery at each systole; in other words, the output of blood by the heart.

2. The tone of the artery; that is, the resistance to the onward flow of the blood through and out of the artery. It is evident that the output from the heart depends upon the amount of blood delivered to the ventricle from the veins and auricles, the condition of the valves of the heart, the strength of ventricular contractions, and the heart rate. In Corrigan's disease we may find a difference in the systolic pressure between the arm and leg of 150 millimeters of mercury, when normally there should be no difference. In the artery, both physiological and pathological states may and do cause contraction of the size to such a degree that it may almost lose its lumen entirely, as Tigestedt states, during sufficiently strong stimulation of the vasomotor nerves. His conclusions after prolonged experiments are that, "The blood pressure, although equally dependent upon the peripheral resistance and the minute volume from the heart, is nevertheless governed above all by the degree of contraction of the vessels at the moment. If the vessels are markedly dilated, then the heart ultimately cannot receive sufficient blood and sustain a high blood pressure. On the other hand, there is no limit for increase of resistance. With a marked resistance a very small output from the heart suffices to maintain a high blood pressure." (Quoted from Mosenthal.)

The arterioles not only have the greatest influence in the control of general blood pressure, but, it is obvious, they also entirely control the circulation to local vascular areas. When dilated, the part is supplied with more blood. Hewlett states that in the brain only of all the vascular areas, does the normal blood supply seem to depend more on the height of the blood pressure than on local vascular control. If the arterioles supplying a small organ or area are constricted or relaxed, no great change in the general blood pressure results, but if the splanchnic or other large area be changed as to its vascular resistance a measurable or even a very striking change may result in the systemic blood tension.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

The size of the arterioles is governed mainly by nervous control, which is exerted through vasoconstrictor and vasodilator impulses. The vasoconstrictor center in the medulla may be stimulated by changes in the blood or by nervous impulses from other parts of the body, and acts mainly by constricting the large splanchnic vessels. The vasodilator impulses arise mainly from the first part of the aorta and are carried to the medulla by the depressor nerve, and they are excited by either nervous or chemical causes. The depressor nerve is stimulated when blood pressure increases, so that this reflex tends to prevent sudden changes of arterial pressure. (Hewlett.) It is probable that the capillaries also vary in size under chemical or nervous influences, but just how is very little understood. The veins also must have some influence in the control of blood pressure, principally by maintaining the blood supply to the heart; and this varies with many physical conditions, as heat, cold, exercise, and nervous conditions.

Temporary rises in the blood pressure are encountered in many states in which the cause is obvious. That which occurs after muscular exertion is probably due to increased heart action. Hewlett states that most transient increases in pressure are due to contraction of the arterioles, as, for example, in acute asphyxia the vasomotor center being stimulated by the venous character of the blood. Acute cerebral compression causes a rise in blood pressure through an anemia of the vasomotor center; if prolonged, the irritability of the center is reduced so that the pressure falls again. The "gefasskrisen" of Pal may also be accompanied by a blood pressure rise, though it is uncertain whether it is due, in these instances to the vascular spasm or to irritation of the vasomotor center.

Certain forms of acute nephritis seem to be prone to cause heightened blood pressure, especially the glomerular types, as opposed to those in which the tubular damage predominates Uremia, eclampsia, and anuria are generally accompanied by a raised arterial tension, which subsides with recovery from the attack.

CHRONIC ARTERIAL HYPERTENSION

The stress of modern conditions of living undoubtedly has increased the incidence of chronic arterial hypertension. It is not unusual to find individuals of thirty carrying systolic pressures of 135 to 145, with pulse pressures higher than the average. Above the age of forty the number of cases of high blood pressure increases rapidly, as does the progressive rise in blood pressure readings. It must be acknowledged that we do not know in the majority of instances just how it is caused. As middle age advances, the changes that take place in the arteries naturally favor a rise in the blood pressure by increasing the peripheral resistance in the arterial tree; loss of elasticity of the arteriolar walls deprives the capillaries of the continuous blood supply during the cardiac diastole; an increase in the muscular tissue in the wall of the arterioles tends to increased vasoconstrictor action and the capillaries themselves lessen in area. All these natural changes unite to produce a physiological rise in blood pressure. It has been abundantly proved that atheroma and sclerosis of the larger arteries does not cause hypertension unless accompanied by arteriolar fibrotic change. It is now conceived by clinicians, however, that it is not because the changes in the arterial walls or the capillaries decrease the area of the blood stream to such a point as to produce permanent hypertension, but that the thickened arteriole is much more subject to spasm, or vasomotor contraction, than the normal vessel, and the result is increased resistance to the onward flow of the blood, due to an increased tone of the muscle fibers surrounding the arterioles. In some cases of chronic arterial hypertension no changes can be found in the arteriolar walls, nor in the kidneys—the hyperpiesia of Allbutt, essential hypertension, or functional hypertension, variously so called. It has been assumed that the high blood pressure in these instances is due to an increased functional tone in the arterioles generally. This has led to the view now common among pathologists, as well as clinicians, that functional hypertension itself is a cause of sclerotic changes in the vessels, or that both the hypertension and the arteriosclerosis are due to a common cause.

It is one of our common experiences that chronic nephritis may be associated with high blood pressure. It is a diagnostic feature of the chronic interstitial variety, while in glomerular nephritis it may be absent. There is rarely any increase in blood pressue with amyloid disease of the kidney. We may assume it demonstrated that kidney disease is not the only cause of hypertension, because we often find a normal urine passed in hypertension cases, even in the age periods when casts and albumin may almost be considered a physiological finding. Furthermore, pathologists are continually finding normal kidneys in patients with a high degree of hypertension.

Many observers note that clinical arteriosclerosis is often accompanied by normal or lowered blood pressures. Even cardiac hypertrophy does not exist in 35 per cent of all subjects with marked arteriosclerosis, according to Ophüls. It is evident from a consideration of the above factors that high blood pressure cannot be ascribed in every case to pathological changes, even in the presence of sclerosed arteries or diseased kidneys. We are in doubt as to whether the lesion in the artery or kidney causes the hypertension, or whether the hypertension existed first and led to the changes in the renal tissue or arterial wall. The question bids fair to rival the celebrated conundrum of "Which was the first, the hen or the egg?" The real importance of the hypertensive states is found in the results of high blood pressure upon the heart, kidneys, and the arteries, which must bear the brunt of the ever-increasing strain. Continued progressive arterial hypertension causes almost invariably an hypertrophy of the heart, which for the time at least compensates for the increased obstruction of the blood flow. There is a tendency for the heart to weaken under this strain alone, and it must not be forgotten also that the arteries which supply the heart muscle itself are subject to the same changes which take place elsewhere, and that a nutritional disturbance of the myocardium follows. These are evidenced in different patients in different ways. Cardiac irregularity is a somewhat frequent occurrence, either producing extrasystoles or pulsus alternans. Anginoid pains are much more common in hypertension cases than in others. Whether the pains are due to myocardial or coronary disease or to vascular spasms must remain unsettled for the time.

When the arterioles of the kidneys are affected, chronic interstitial nephritis comes on, and some of these patients die of renal insufficiency, perhaps ending in a terminal uremia.

The brain symptoms form an interesting group. Thickening of the vessels is apt to show some symptoms of mental deterioration, loss of memory, or even transient loss of motor power, aside from the more sudden insults due to hemorrhages or thrombosis. Of late the more temporary of these attacks are recognized as probably sometimes due to vascular spasm.

It is thus seen that a patient suffering from chronic progressive hypertension has, in general, a rather unfavorable outlook. The tendency is altogether toward either a progressive heart failure of one sort or another, a cerebral accident, or kidney disease of unfavorable prognosis. We have been a little too apt to regard high blood pressure as a conservative and compensatory process at times. It is easy to compare a one-story bungalow, requiring only a low head of water, with a twelve-story building, which needs far greater pressure to supply its needs. In the one case the plumbing may be even of elastic material; in the other it must be very much stronger and require great force to supply demands at the top. It is obvious that in the latter case accidents are much more common and serious, and, if additional stories are added to the building, the attempt to supply water at the top will reach its limit. The comparison falls short in that the tissues of the human body require its supply to be varied constantly according to the needs of activity.

It needs no argument, therefore, that chronic progressive hypertension is a serious affair and that its ultimate results should be prevented as far as is possible. Theodore Janeway collected statistics on the causes of death in this condition and found that, as quoted by Mosenthal, 35 per cent died of cardiac insufficiency, 7.3 per cent of angina pectoris, 4.4 per cent of edema of the lungs, a total of 46.7 per cent of deaths attributable to heart failure; 22.6 per cent died of uremia, and only 14.6 per cent of cerebral conditions.

It is traditional to attribute arterial hypertension to faulty habits, the chronic toxemias, such as coffee, tea, and tobacco, and others of the class of things to which the text-books have long given a bad name. In considering one's actual experience we probably all agree that worry, family or business responsibility, and overeating with insufficient or irregular muscular exercise, form a combination which has been present in a strikingly large proportion of our cases of high blood pressure. A family history of cardiac, renal, or vascular disease is also quite noticeable.

It has been the writer's lot to meet with a large proportion of instances of hypertension in which the progressive heart symptoms predominated. In one case, a man of large responsibility in business and apparently in perfect health, was observed to have a progressive but gradual increase in his systolic pressure. He was warned of his danger, but found the advice given him too drastic, and he was not again seen until nine years later, when he died of progressive myocardial failure. Another man died of thrombus in the lower branch of the left coronary seven years after he had been urged to heed the warning given by a raised systolic reading, followed later by some transient shortness of breath on exertion. Both these men were good examples of the results of neglect to reduce the load on the heart. Many others will readily come to mind.

Hypertension varies markedly with rest and reduction of the load, the systolic reading varying in the given patient 20 to 30 or even 40 mm. of mercury. The diastolic pressure varies less, but it is not fixed. On taking up activity, the former pressure is usually resumed.

In the treatment of raised blood pressure two things should be attempted. Reduction of the burden already thrown upon the heart and arteries, and elimination of those causes which keep up or increase vascular tension. The vasodilator group of drugs has fallen into deserved disrepute because they are actually of little effect; and, furthermore, artificial reduction of an existing pressure by such means frequently results in unfavorable states of vitality. Of late a new group of drugs is under consideration, of which benzyl compounds are examples, because of the reputed and sometimes notable effect in relaxing spasms of unstriped muscle in other tissues. As yet no permanent result has been authoritatively observed from their use, though encouraging reports are made. It has also been traditional to suppose that protein foods cause high blood pressure. Mosenthal made an interesting experiment upon an individual with marked hypertension, who took for thirty-nine days the same number of calories per day, but for a period a high protein and another period a low protein diet. No effect upon the height of the blood pressure could be seen. It would be wrong to generalize too much from this one instance. A high protein diet does produce tissue changes which raise blood pressure. A regimen lacking in protein induces low vitality, anemia, and poor nutrition. On this account we may have erred in prohibiting proteins at times. It is probably in hypertension with kidney involvement that the protein intake should be limited below the normal balanced diet, to relieve the damaged renal tissue, rather than because the products of protein digestion directly irritate heart or arteries.

Overweight is a disadvantage to the burdened circulatory mechanism. A diet high in carbohydrates may be deleterious in these instances. As a matter of fact, with a combination of high blood pressure and obesity a reduction of weight often relieves the hypertension remarkably. The same argument applies to fats, though they have no selective effect upon the heart, arteries, or kidneys. Various observers have experimented with salt in the diet in hypertension. Some of these, apparently, have found that increase or diminution of sodium chloride causes a rise or fall in the blood pressure. Other observers deny this. The truth probably is that it is only in hypertension with nephritis that sodium chloride intake has an effect on the height of the blood pressure. We know that the elimination of salt is interfered with in most cases of nephritis.

It is probably unnecessary to restrict the fluid intake in an effort to reduce blood pressure. It is true that very large amounts of fluid do result in an increase in arterial tension, as observed by Miller and Williams, but Mosenthal found that this rise required an ingestion of many times the probable amount of liquid which the individual would be likely to take. Intravenous administration of solutions even up to 1,000 c.c. does not affect the blood pressure.

As to the effect of rest and relaxation from nervous influences: In our own experience and that of others of wide clinical view, the most satisfactory results in treating hypertension have been attained by rest for a longer or shorter period, together with the removal of all possible sources of irritation and worry. This involves, of course, the consideration of business and social conditions not always amenable to change. How much actual reduction in arterial tension may take place in a given case is problematical. Some individuals are able to throw off care; others are not. We often observe remarkable increase in blood pressure under conditions of acute grief or anxiety with a return to or near normal, later on. Worry becomes a habit, and one very difficult to break. On this account a prediction cannot be made how far rest will benefit such cases. Rest does good, especially rest in a recumbent position. From a theoretical point of view the progress of pathological changes will be best retarded by this means. It becomes absolutely necessary in the presence of acute symptoms due to hypertension.

SUMMARY

From the above it is evident that chronic arterial hypertension is a serious condition and is on the increase. If unmodified it tends slowly and insidiously, but progressively, toward pathological changes in the arteries, kidneys, and heart; and the result of these changes is progressive heart failure in one of its forms in nearly 50 per cent of all long-continued hypertension cases. Of the other 50 per cent more than half are apt to have either serious renal disease or cerebral accident. The others die of intercurrent affections. No specific treatment can be expected to restore the individual completely. Reduction of nervous strain and rest are the most important means of combating the condition and arresting the progress of change in the tissues which results from hypertension. Along with these things attention to the diet and the correction of such faults as foci of infection have a bearing on its progress and often result in a marked reduction in the blood pressure.

DISCUSSION

Dr. C. C. Gross (Yankton): I think we are all greatly indebted to Dr. Cross for his learned contribution on the subject of arterial hypertension. I must confess to you that the state of my own mind in regard to this subject is one of great confusion. I have been greatly perplexed at times to account for the conditions I have met clinically, and I believe most of you have faced the same problem.

Dr. Cross has very nicely brought to our minds today the great complexity of this subject, and I think he has made it clear to us that we are not dealing with a pathologic entity, but with a complex of symptoms, a syndrome, or a multiplicity of syndromes. The syndrome is rarely the same. It is a complex condition in which the condition varies in different cases. While he has brought to my mind confusion of my own conception of the condition, he has brought some degree of comfort because he has blazed the way, so to speak, to the clue which we may follow and which may ultimately lead to the elucidation of the subject. This, I think, has been brought to my own mind personally because I have considered the subject chiefly from a clinical standpoint by the variety of cases in which we meet hypertension.

At the present time I have a series of cases under observation in which arterial hypertension is a prominent symptom—I say symptom because I consider it a symptom. For instance, in one case, that of a young adult, 23 or 24 years of age, with a large amount of albumin in his urine, with granular casts, and with a diminution in his output of solids, a 24-hour specimen. He has an arterial tension of 130; diastolic pressure of 75. On the other hand, another patient has not a trace of albumin in the urine, a slight diminution of solids, an occasional hyalin cast, and an arterial pressure of 245 to 265, with a diastolic pressure of 130. Another patient, apparently a neurotic, with every indication of mental anxiety and worry, has a perfectly normal blood pressure.

So we could multiply examples. How shall we harmonize the clinical symptoms, the clinical conditions, when we consider them from the standpoint of hypertension? I think Dr. Cross has enlightened us today on this subject, and perhaps has given us a clue as to how we may approach the subject, because we must approach it from an entirely different standpoint. We must investigate the subject, not merely from the standpoint of high blood pressure, but we must hark back to the very foundation of our medical knowledge. We must attack the subject from the bottom, not from the top, and I believe personally we must search for that along the line he mentioned in one word, and that is toxemia largely—toxemia of varying degree and of various sources and origins. I believe, perhaps, if we direct attention to the subject of focal infections, to gastro-intestinal toxemias, and to altered function of the liver, we may in time understand the subject a little better.

In listening to the paper I could not help but recall some of the suggestions that were made in some of the papers this morning, notably that of Dr. Ohlmacher, in which he referred to the subject of blood analysis, and it occurred to me at once, as he was speaking on the subject, how very suggestive that was. It came to my mind at the time this particular problem of arterial hypertension was under consideration, and I believe possibly we may receive a great deal of aid in the elucidation of this subject from the future researches of the physiological chemists, those who are going to investigate the condition of the blood from a chemical standpoint.

Dr. E. Klaveness (Minneapolis, Minn.): Many of you will probably recall that for a few years past I have been connected, as President and Medical Director, with a life insurance company until last year, when I sold the business and returned to the profession as a common worker in the ranks. But during these many years in which I have had experience as a medical director connected with a life insurance company, I have lived through that cycle of having local medical examiners acquire the habit of giving accurate blood-pressure readings, and I must confess at this time that we have advanced as yet but little.

Only a few years ago I was thinking of collecting together all these data with the view of reading a paper about it because I got reports from our medical examiners somewhat like this: "Systolic pressure of 115, and diastolic 120," showing absolute ignorance of the whole mechanism; and this was repeated so many times that I began gradually to disregard these readings until when I knew my medical men personally and knew they were competent I began to give attention to their readings. Life insurance companies took concerted action in 1910 that blood-pressure readings must become a requirement in our blanks the same as life insurance companies required years ago correct urinalyses.

After listening to Dr. Cross' paper on arterial hypertension, and summing up the great proportion of cases I have had in these years in my private practice and in life insurance work, I cannot help but think we must have two classes of hypertension, one the organic form which is a small part of the clinical picture and should not cause any difficulty for any doctor to ascertain, as in a typical case of nephritis, a typical case of arteriosclerosis, or in myocardial diseases. But we have another class which I would call functional, where the individual, undoubtedly for a number of years, has had a shattered nervous system, high blood pressure from intensive work, such as we do in this country, and it was brought to my mind when I was over in Europe. There the men engaged in business would insist on having reclining rest during the lunch hour recess; whereas we rush back to our work in this country and get very little recess. After eating we rush back to work again. Over in Europe the business men take a little nap after lunch, and there is much less nervous prostration, which is a term we are very familiar with in this country, but we hardly ever hear of it in the northern countries of Europe. They are taking pains to enjoy a little actual rest for their hearts in the midst of their work.

One of the essential things brought out in this paper is that the worry, business cares, and high blood pressure of attending to business will give us these forms of hypertension which we cannot otherwise have.

Not many years ago an attorney was anxious to take out life insurance. He had never carried any insurance before. He was fifty-two years of age; he was an intensely hard-working attorney, lived in Minneapolis, and had a large practice, and I never anticipated any trouble on his part. I thought he would pass the examination gloriously. Lo and behold, the local medical examiner sent in a report to the effect that he could not report on this applicant favorably because he had a systolic pressure of 168. I said let him come over another day and we will check him up. He came back to my office in a day or two, and the same report was made after examining him. He suffered from his intense work. He had to lay off from his work. He took a rest. In the fall he went to northern Minnesota, took a hunting trip, and came back feeling much better, and pursued the even tenor of his work. There was nothing wrong with any of his organs, either the heart or the kidneys at the time, but from the findings of the local examiner he was on the suspended list, because we did not care to assume responsibility until we were sure we could pass favorably on the state of his health.

There are patients that are carrying hypertension due to too much or usually too intensive work, and in many instances they are really unjustly the cause of much alarm. We should instill into their minds that they must proceed with their business at a slower pace and not carry it on so intensively, and if they do that they are likely to live for many years longer than they otherwise would.

Dr. Cross (closing): I have nothing new to add, although I would emphasize my own point of view, which is that there is an essential arterial hypertension which is serious, but without demonstrable pathology. The condition tends to progress unfavorably and in at least 75 per cent of cases to be the indirect cause of changes which in turn lead to the death of the patient. How long? Certainly not immediately, unless there is a previous lesion of the arterial wall or a weak heart, but usually years after the blood pressure shows progressive increase above the normal.

Acute hypertension, that is to say, raised blood pressure from acute and temporary causes, is usually not serious except when due to cerebral changes. It must be understood that this group is quite distinct from the chronic, progressive cases which I attempted to describe. These cases ultimately assume a serious aspect and should be considered as potentially leading to heart failure or renal trouble. It seems to be pretty well established that arterial hypertension long continued in time causes changes in the heart, kidneys, and the arterial walls themselves. In the light of our present knowledge the individual with a continued blood pressure above normal should be so advised as to protect him as far as possible from further increase of his trouble and its consequent effects.

AEROCELE OF THE BRAIN*

With Report of Cases

By Archibald D. McCannel, M.D., F.A.C.S.

MINOT, NORTH DAKOTA

Aërocele of the brain, or air within the cranial cavity, is rather an uncommon condition. I find that this lesion has been recognized only comparatively recently, and the cases in literature are not very numerous, and they seem to be confined to American and French literature. I shall give a brief review of the summary of nine cases Dr. Spiller found reported in the literature, together with a summary of his own case.

My attention was called to this when Prof. William G. Spiller, of the University of Pennsylvania, reported a case of aërocele of the brain, and his report, including röntgenograms, so nearly corresponded with mine that my interest was aroused.

The lesions are usually found in the cerebrum, developing after a fracture of the skull, usually in the frontal region; but cases have been reported in the temporosphenoidal lobe, communicating with the mastoid cells, following a fracture of the base.

Of the cases I have found reported, the fracture has communicated with the brain substance through breaks in the dura. The presence of air within the cranial cavity may be accounted for in different ways, according to its location:

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1. Following fracture of the skull, through pneumatic sinus, the air forming a pocket between the dura and the cranium.

2. In cases of fracture where the dura is ruptured, softening or hemorrhage occurs in the frontal lobe, and with the absorption of this degenerated tissue the space for the collection of air in the cranium is afforded; then, the forcing of air into the cranial cavity completes the picture.

The cases so far reported, according to Dr. Spiller, are the following:

(e) "Luckett regarded his case as the first on record of air in the ventricles of the brain diagnosed as such before operation, found to be so at operation, and, lastly, proved to be correct at necropsy."

(j) "W. H. Stewart's case is reported as one of air in the ventricles. As a result of trauma the vertical plate of frontal bone was fractured in the region of the outer edge of the right frontal sinus. Symptoms steadily improved, and patient demanded his release from hospital. In two weeks and four days later he was re-admitted to the hospital with severe headache and occasional vomiting; he was dull and listless. He was supposed to have abscess of the brain, and he had bilateral optic neuritis. The following day Röntgen-ray examination showed that the ventricles were distended with air or gas. This had not been observed previously."

(i) "E. H. Skinner's patient had a fracture of the right superorbital ridge of the skull."

(a) "G. Cotte reported a hydropneumatocele of the head in the frontal region, following a fracture of the skull. It was supposed to come from the frontal sinus."

(c) "In Holmes' case the Röntgen-ray examination, made almost immediately after the accident, showed a linear fracture through the outer table of the frontal bone, with a suggestion of a continuation of the fracture through the inner table. The frontal sinus was involved. A large oval area of markedly diminished density in frontal region indicated an early collection of air within the cranium. One week later the patient developed meningeal symptoms. At operation the dura beneath the posterior wall was incised, and two ounces of turbid serum and air escaped. The patient died two days later from meningitis."

(g) "Hollis E. Potter reports a case of hydropneumocranium with air in the ventricles. A man, after a fall of fifteen feet, probably had a fracture of the skull, but no loss of consciousness and no pronounced nervous symptoms, except headache, which lasted only a week. Routine Röntgen-ray examination disclosed a frontal skull fracture; there was evidence of gaseous accumulation in volume and shape comparable to a hen's egg. This finding was not made until three weeks after the injury. After two weeks there was considerable increase in volume of gas, and the cavity was found, then, to contain fluid, the level of which varied with the position of the head, and, under the screen, the fluid could be seen to splash. With any sudden movement of the head, the splashing was audible. The air and fluid disappeared, and two months from the accident no evidence of the cavity could be found."

(f) "R. J. May's case is very briefly reported as one showing air within the cranial cavity. The patient was knocked down and died within a few hours. Röntgenograms were made the next day, several hours after death. A fracture was found in the right frontal bone, and a large air space was found in the frontal region."

(b) "Glenard and Aimard report a case of a soldier shot in the head, the bullet entering the frontal region. Cerebrospinal fluid escaped in small quantities for two months. A röntgenogram taken two months after the injury showed a clear space in the left frontal lobe. Later the space filled with fluid, as a bruit could be heard on sudden movements of the head. Later, both air and fluid disappeared. The man had had no headaches or other cerebral symptoms, and operation was not thought advisable."

(d) "H. M. Imboden's case was one of fracture of the skull, in which several pieces of bone were removed, and aërocele was found some time afterwards directly beneath the site of the fracture. No operation was done, and a Röntgen examination one month later showed air had been completely replaced by brain tissue."

(h) "The last case reported was one by Drs. Spiller and Doyle. The patient, aged 50, met with an automobile accident nearly three months previous to his admission to the hospital, having had a fracture of the skull in the left frontal region. He was unconscious after the accident for some days, and since had complained of headache in the frontal region. He had been blind in the left eye since the accident. Two weeks before admission he began to have frequent fainting spells, four or five daily. He became irrational a week later, and had marked defect in memory, and was not ataxic. The left eyeball became sunken and displaced somewhat downwards. Röntgenograms showed a fracture running into the frontal sinus from the left temporal region, and a collection of air in the left temporal region was diagnosed. Some three weeks after the accident he began to show signs of increased intracranial pressure. One week later he had numerous convulsions, and he was operated on to let the air escape. The dura was tense, and air rushed out with an audible hissing sound. The pulse and respiration went up rapidly, and the patient died the following day."

The case I wish to report corresponds in many respects to the ten cases I have found in the literature, especially to the one reported by Skinner. This was the first case I had seen, and I was very much surprised, upon making röntgenograms, to find a shadow of diminished density, some four weeks after the accident, which was not present when I first saw the patient eight days after the accident. This case differs from all of the others reported in that the eye symptoms were more marked and the general symptoms were practically absent.

Mrs. Wm. Spidel was referred to me by Drs. Hoyt & Smith of Glasgow, Montana, on account of partial loss of vision in the right eye, double vision, and the right eye turning in. The patient gave the following history: Eight days before she met with an auto accident, the machine going over a culvert, and she was thrown against the wind-shield. She was taken to Glasgow Hospital in a semiconscious condition, with a wound over the outer side of the supra-orbital ridge. This wound was taken care of at the time. When I first saw her (eight days after the acicdent) I found the following:

Wound healed; 5 cm. long, extending from forehead down and out across the external angle of the orbit; slight exophthalmus of right eye; conjunctiva congested; cornea clear; iris normal; pupil slightly enlarged; good consensual reaction, but rather sluggish to direct light; complete paralysis of external rectus muscle of right eye. Fundus examination showed media clear, but marked congestion of disc and retina. Vision, right eye: fingers at 12″; left eye, 20/20.

Röntgen-ray examination showed a fracture of the frontal bone, extending from the center of the frontal sinus to the temporal region. Both frontal sinuses were normal. The patient did not complain of headaches or other pressure symptoms. I kept the patient quiet warning her not to blow her nose forcibly. I gave her potassium iodide internally.

One week later vision was: right, 10/200; left, 20/20, and slight improvement of external rectus.

In another week, vision had improved to 20/100. After another week (which was three weeks after the accident) I decided to let the patient go home.

Before doing so I made another Röntgen-ray examination, and, to my surprise, found a large round area of diminished density directly beneath the site of fracture into the frontal sinus. I had Dr. Pence confirm my röntgenograms, and we decided it was an air pocket. As the patient was improving steadily, she returned home one week later, or five weeks after the accident, with vision in right eye 20/50, and left eye 20/20; and the external rectus muscle almost completely recovered. The röntgenograms showed an area of diminished density of the same size as the week before.

Two months later the patient returned, and Röntgen-ray examination showed no area of diminished density. Complete recovery of external rectus muscle; no double vision. Fundus examination showed optic nerve rather white; vision, right eye, 20/50; left eye, 20/20.

In conclusion, we may summarize as follows:

1. Aërocele of the brain, or air in the cranial cavity, is a comparatively rare condition; but I believe that when attention is called to this condition more cases will be reported.

2. Aërocele does not always appear at the time of the trauma or accident, but, usually, two or three weeks later; and, in all cases of head injury, especially in fractures near the sinuses, this condition should be looked for.

3. The röntgenogram is the only means of making a diagnosis.

4. The pathology of this condition has not been definitely settled.

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DISCUSSION

Dr. H. W. Miller, (Casselton): What little there is known on this subject has been so thoroughly covered by Dr. McCannel that I can add nothing new. However, there is one point that I would like to emphasize. From a study of the reported cases, one thing that impressed me was the fact that this condition of aërocele of the brain comes on comparatively late, usually in two or three weeks, and, in some cases, as late as two or three months, after the original injury. If the *x*-ray examination made at the time of the injury is depended upon for the diagnosis most of these cases will be overlooked. If Dr. McCannel had not taken the precaution to make another picture before his patient left for home he would probably not have been able to report this interesting case. For this reason it would seem advisable in all cases of fracture of the skull involving the sinuses, especially in those cases involving the frontal sinus, to make an *x*-ray examination before discharging the patient. If this were done as a routine probably a good many more of these cases would be brought to light.

Dr. C. E. Spicer (Valley City): I would like to know how to differentiate in the *x*-ray examination between a blood clot and this condition. We often have blood clots following injuries about the brain, and I do not know how in the *x*-ray examination we can tell the difference.

Dr. McCannel (closing): I am not a röntgenologist, but, in answer to the question as to the blood clots, I would expect to find an area of increased density, rather than decreased, so that a blood clot would show up as a light area, while this is a definitely marked black area.

CLOSED METHOD OF TREATING EMPYEMA*

By John Ewing, M.D.
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While little has been added to our knowledge of the pathology and symptomatology of empyema during the last decade, many valuable contributions have been made regarding its treatment. The epidemic of pneumonia which existed in practically all military camps during 1918 and which was complicated by empyema in a high percentage of cases gave a new impetus to the study of this condition. From the data of this vast experience, collected largely by the Empyema Commission, we are able to draw the following conclusions:

1. The treatment of empyema is always surgical.

2. It is of prime importance to investigate the type of the causative organism.

3. Early operation is indicated only in the pneumococcus empyemas, which occur during the convalescent period of lobar pneumonia. Early operation in the streptococcus empyemas, which complicate rather than follow a bronchopneumonia, means a mortality of 30.2 per cent, while operation delayed until the fluid becomes frankly purulent has a mortality of only 4.3 per cent.

4. Irrigation of the cavity and the use of antiseptics within the cavity, by virtue of their cleansing action and their bactericidal power, hasten the disappearance of the discharge and the closure of the cavity.

5. For preventing the formation of a dense unyielding exudate on the visceral pleura interfering with subsequent expansion of the lung, aspiration drainage, removal of air by means of an inverted glass funnel and aspirator, and the Wolf bottles have all been proved of value.

6. The closure of old sinuses by means of Beck's paste, composed of one part of bismuth subnitrate and two parts of sterile vaseline, has been successful where the more radical Eslander and Schede operations have failed.

7. The production of an acute surgical pneumothorax is always fraught with some danger, and especially is this true when, as in bronchopneumonia, both lungs are involved by the primary infection. The reasons for this are made clear by the experiments of Graham and Bell on the relation of open pneumothorax to empyema. These investigators have shown that the mediastinum in the human is not a dense, unyielding partition dividing the chest into two distinct cavities, but that, in reality, it is so mobile that it offers practically no resistance to the atmospheric pressure of an open pneumothorax. From the standpoint of pressure relationships, the thorax may be considered as one cavity instead of two.

8. An occasional sudden, unexplained death results when the pleural cavity is opened by ordinary thoracotomy, probably the result of altered pressure relationships and sudden displacement of the thoracic and abdominal organs.

9. Surgical shock followed by death in a few hours sometimes follows thoracotomy and rib resection.

The latter observations have led to the development of a closed method of treatment free from the danger of open thoracotomy, yet establishing free drainage and bringing about early healing. This closed method, which is in reality nothing more than an elaborate development of aspiration, is valuable only in selected cases. It, like intercostal thoracotomy and thoracotomy with rib resection, has its limitations.

The technic of the closed operation, as carried out by the writer, is as follows: Under novocaine anesthesia, a Y-shaped trochar carrying a closely fitting firm rubber catheter No. 16 F is introduced into the pleural cavity, a small incision having been previously made through the skin over the cavity as determined by preliminary physical examination, *x*-ray, and aspiration. The trochar is so designed that one leg carries the catheter and the other the stilette, the latter pushed through the trochar so that its point protrudes a little from the body of the Y. Preparatory to introducing the trochar; it is plunged half way through the center of a piece of sterile rubber dam, which serves the twofold purpose of holding the catheter in place and of making an air-tight joint where the catheter enters the chest wall. Also the distal end of the catheter is kept closed by clamps during the entire procedure, so that no air is allowed to enter the chest cavity.

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*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

After the trochar has passed through the chest wall, the stilette is slowly withdrawn just enough to allow the catheter to be pushed through the body of the Y and into the pleural cavity, the length of the catheter introduced being noted. With the trochar still in place, the catheter is then connected to an aspirating bottle in such a way as to allow no air to enter the thorax, and the pus is slowly aspirated.

During this process the catheter is drawn slowly in and out, so as to make certain that the cavity has been completely emptied. The trochar is then withdrawn over the catheter, and the latter is fastened to the chest by applying adhesive plaster over the rubber dam, care being taken to avoid entrance of air by keeping the tube clamped at all times, except when connected to the aspirator or syringe. The following day Dakin's solution is injected into the cavity and drawn in and out to dissolve the fibrinous masses, then withdrawn and replaced with fresh Dakin's solution, which is allowed to remain for thirty minutes. The treatment is repeated as often as necessary to keep the cavity clean. The progress of these cases is well controlled by smears and the irrigations continued until the discharge on the smear is free from micro-organisms. F. M. Manson, of Minnesota, recommends that the Dakin irrigations then be followed by injections of from 10 to 50 c.c. of 2 per cent formalin-glycerin, which is left until the next treatment. At regular intervals of from one to three days irrigations are suspended for six hours, at the end of which time cultures are taken, and as soon as they are negative, the tube is withdrawn and the wound allowed to heal.

The writer's experience with this method gave proof of its value and stimulated an investigation of the closed method in the hands of others.

To quote from the paper of F. M. Mason, "The Treatment of Empyema by a Closed Method," *Minnesota Medicine*, 1920, vol. III, p. 124:

"Of 43 cases treated in this way all were cured of empyema, and none had to have secondary operations save one case. This case was openly drained for several weeks before the closed method was tried. The average time between the operation and the closing of the wound was thirty-one days; the shortest sixteen days; the cavities usually become sterile in ten days. This experience is substantiated by the case-reports from the Walter Reed and Camp Pike hospitals, where in seventy cases there were only two deaths, both from double empyema, the cavities becoming sterile in an average of ten days, with the complete recovery of twenty-six cases without secondary operation."

A. T. Mozingo reported similar results in the *Journal* in 1918.

J. S. Wight and R. Harlos have designed an empyema shield and the closed method of applying it was reported in *Surgery, Gynecology, and Obstetrics* in 1920.

E. J. Butler and A. D. Haverstock, writing in the *Military Surgeon* in 1921 state that the method has a very low operative mortality and an appreciable percentage of cures, but they are inclined to regard it as a temporary measure in many cases.

In conclusion, the closed method of treating empyema has been shown to have the following advantages:

It is a simple minor operation done under local anesthesia, without trauma or shock and causing little more pain than a needle aspiration, yet efficient in maintaining drainage, permitting suction, irrigation, and the use of antiseptics. The pleural cavity is closed at all times, so that negative pressure is maintained and there is no alteration in the relation of the cavity to atmospheric pressure. Thus the lung on the affected side remains expanded, favoring frequent evacuation and early obliteration of the cavity. Also the lung on the normal side is not embarrassed, as it would be in an open pneumothorax, a point of great importance in the empyemas complicating bronchopneumonia.

The method offers ideal conditions for frequent emptying and irrigation of the cavity with antiseptics.

There are no damages to the chest wall and no deforming scars so often seen after the open operation.

The wound is always clean, there is no irritation of the skin, and therefore there is great economy in time and dressings.

There are no pain and tenderness at the site of the wound.

It is worthy of trial in practically all cases of acute empyema and is of especial value in the streptococcic types before the fluid becomes frankly purulent.

In chronic empyemas, when the cavity is definitely walled off, it is of no advantage.

The drainage is necessarily intermittent.

In cases where there is much thick fibrin in the pus, drainage is interfered with, but this may be overcome to some extent by employing Dakin's solution as a solvent for the fibrinous masses.

In cases with a bronchial fistula irrigation is contra-indicated, and the maintenance of negative pressure in the chest cavity is impossible.

In conclusion, the essential points of the method are as follows:

1. A single, early minor operation without danger of shock or of collapse of the lung.
2. Intermittent removal of pus, and antiseptic treatment applied through a small rubber tube which fits air-tight in the chest wall.
3. Economy of time and dressings.
4. Rapid partial sterilization with Dakin's solution followed by complete sterilization with 2 per cent formalin-glycerin.
5. The maintenance of negative pressure in the thorax, tending to early obliteration of the cavity.

DISCUSSION

Dr. Kent E. Darrow (Fargo): Dr. Ewing has covered the field admirably, but a few points I wish to emphasize more strongly than even he has emphasized them. Of course, in the treatment of empyema we must have drainage, and we must build up the patient's immunity and sterilize the cavity, and we must have the pleura of the lung in such shape that it will obliterate the cavity. The form of treatment he has outlined fulfills these main principles. By the suction you get free drainage. By the Dakin solution more particularly, as he said, you dissolve the thick exudates. Even Dr. Ewing said that often it was impossible to sterilize the cavities with Dakin's solution. Once in a while you will get a case that can be sterilized with Dakin's. By getting a negative pressure you keep the pleura well filled out, so that you may obliterate the cavity.

I have found oftentimes in taking up a new treatment that we forget important contributions made years before. It has been a good many years since Dr. Murphy advocated treating empyemas with glycerin and formalin. He would aspirate and fill the cavity with glycerin and formalin. He used the same thing in the infected joints, and I have found that in these cases, even without the permanent catheter in place, this will cure them. Even in cases of lung abscess you may inject this into the cavity. In one case we aspirated without anesthesia and injected as much formalin and glycerin as the patient could stand, and succeeded in curing, not only the empyema, but the lung abscess. I think the most important part of the treatment is the formalin and glycerin. I have seen patients that were running a temperature of 102° F. every afternoon and within twenty-four hours the temperature dropped to normal and remained there, and by repeating the injections they were cured. On the other hand, if you wish to put in the permanent catheter you have the case under control at all times, and can learn when the case is sterile.

I wish to leave the thought that the formalin and glycerin is still a powerful disinfectant, and that these cases can be cured by this method.

STUDIES ON THE RESPIRATORY ORGANS IN HEALTH AND DISEASE

X. The Vital Capacity in a Group of College Women*

By J. A. Myers, Ph.D., M.D. and Faithe L. Myers

MINNEAPOLIS

The vital capacity of the lungs is taken as part of the routine entrance examination in many colleges and universities. Such readings are very valuable when carefully taken and interpreted. One must be sure, however, that the readings recorded represent the true vital capacity. If readings are taken in large numbers by uninterested individuals there is always the danger that the method will not be explained sufficiently and not enough time will be given to the test. Under such conditions the test simply becomes a compulsory but worthless form.

Vital-capacity readings are of very little practical value unless they can be compared with accepted normal standards. New standards have been developed for normal men and women in the last few years, but these do not take into consideration people of all occupations, ages, and localities. The standards generally regarded as most reliable at the present time are based upon the surface area of the body. In a group of 44 normal women West found the average vital capacity was approximately 2.0 liters of air per square meter of body surface. In a series of 94 normal nurses Myers found this average to be 1.87 liters of air per square meter of body surface. Dreyer uses a mathematical formula in calculating the vital capacity which gives results very similar to those of West and Myers. In fact, surface area is taken into consideration in Dreyer's formula.

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*From the Department of Internal Medicine, University of Minnesota.

In this study the vital-capacity readings were used which had been taken under the direction of Dr. Anna Norris, of the Department of Physical Education of the University of Minnesota. These readings were taken at the time the students were admitted to the University. The percentages of the normal vital capacities were read from tables recently prepared. The students were grouped according to age. In Table I it will be seen that the students of each age are sub-grouped according to the observed vital-capacity percentage. The column of averages shows that 27.1 per cent of the 1,058 students had vital capacities below 85 per cent of the normal, while 15.8 per cent had vital capacities between 85 and 89 per cent of the normal. This table shows that 28.5 and 21.8 per cent had vital capacities ranging between 90 and 99 per cent and 100 and 109 per cent, respectively. Only 3.2 per cent had vital capacities between 110 and 115 per cent, while 3.6 per cent had vital capacities above 115 per cent of the normal.

TABLE I

Age	Number of cases	V.C. below 85 per cent	V.C. 85-89 per cent	V.C. 90-99 per cent	V.C. 100-109 per cent	V.C. 110-115 per ct.	V.C. above 115 per ct.
17 ...	254	29.1	18.9	28.3	21.3	0.4	2.0
19 ...	181	29.8	19.9	24.3	17.7	5.0	3.3
20 ...	547	24.5	13.5	29.4	29.4	3.5	4.0
23 ...	76	34.2	11.8	31.6	31.6	6.6	1.3
Total	1,058						
Average		27.1	15.8	28.5	21.8	3.2	3.6

It is generally believed that persons with vital capacities below 90 per cent of the normal possibily have some abnormal condition of the heart or lungs to account for the reduction, while persons with vital capacities below 85 per cent of the normal probably have pathology of the heart or lungs to account for the reduction. It does not seem likely that 27.1 per cent of the young women studied have probable disease of the heart or lungs and another 15.8 per cent have possible disease of these organs. This seems more unlikely when we find only 6.8 per cent of the 1,058 students with vital capacities above 110 per cent of the normal.

In a group of college men recently studied the number with low vital capacities was much smaller, while the number with high vital capacities was much larger than was found in the present group of young women. Our observations have shown that young men look upon the vital-capacity test as a test of strength, and they usually do their best on the first two or three trials. Many of the young women, on the other hand, look upon the test as something to be gotten out of the way as soon as possible, therefore considerable urging is necessary before their true vital capacity is obtained.

The unusually large number of low vital capacities found in this group of college women is probably due, for the greater part, to the following factors: (1) pathology in the chest; (2) possibly the normal standards are not absolutely correct; (3) errors may have been made in taking and recording the readings. Inasmuch as many of these students have graduated and left the University it would be very difficult to make a re-examination in most cases. However, it is hoped that another group will be studied in the near future, and re-examination will be made in all cases with vital capacities below the normal in an attempt to ascertain the real causes of the reduced vital capacities.

Note.—We wish to thank Dr. Norris and Miss Schil for permission to use their records and for aid received in the compilation of these data.

A SIMPLIFIED METHOD OF THE PREPARATION OF PROTEIN MILK—A PRELIMINARY REPORT

By Chester A. Stewart, M.D., Ph.D.
Assistant Professor of Pediatrics, University of Minnesota
MINNEAPOLIS, MINNESOTA

Since first introduced by the German school of pediatrists, protein or albumin milk has been used extensively and successfully in feeding infants suffering from fermentative types of diarrhea and from various forms of malnutrition. Due to the difficulty with which protein milk is satisfactorily prepared, its use has been limited largely to the feeding of hospital patients. Even those skilled in the preparation of this infant food experience occasional failures, and at best its production is a tedious and laborious task. Attempts to instruct mothers to make protein milk properly usually fail, and as a rule the physician has to resort to the use of the various types of protein milk available on the market. Undoubtedly a method for making this valuable infant food simplified to such an extent that it may be easily prepared at home by the inexperienced mother of usual intelligence is highly desirable. During the past eighteen months I have devised a simplified method and have found it exceedingly practical and effective. Mothers using this technic experience no more difficulty in preparing a satisfactory protein milk than is encountered in the preparation of the ordinary buttermilk mixtures so extensively used in infant feeding. The instructions given to the mother for making protein milk are as follows:

1. Boil one quart of whole cow's milk for two minutes and let cool.
2. Add to this approximately one teaspoon of lactic acid (c. p.) and let stand a few minutes. The casein curd is promptly precipitated.
3. Strain the curded milk through a cloth for fifteen minutes.
4. The curd is then put into one pint of buttermilk and stirred vigorously with an egg-beater. This produces a finely divided suspension of precipitated casein in buttermilk. If a sterile product is desired the buttermilk may be boiled after the addition of one teaspoonful of flour to each pint.
5. Add water to make the volume one quart.
6. To this add any percentage of dextrimaltose desired (usually 3 or 5 per cent).

The food is given to the infant by bottle. As a rule the hole in the nipple should be enlarged to permit the passage through it of the finely divided particles of casein curd. Certain precautions should be exercised to prepare the protein milk satisfactorily. The boiled milk should be permitted to cool nearly to the room temperature before adding the lactic acid. When the acid is added to hot milk the resultant curd is very tough.

The method as outlined above has certain advantages over the method formerly used in which essence of pepsin is employed to precipitate the casein. By using lactic acid to obtain the curd the necessity of incubating for one-half hour at 103° F. is eliminated. The method also obviates the necessity of passing the curd through a sieve three to six times to render it in a finely divided condition. Simply stirring vigorously with an egg-beater produces a very finely divided suspension of the casein in buttermilk sufficiently fine to enable it to pass through a nipple provided the hole is enlarged slightly. With these modifications, therefore, the two steps in the preparation of protein milk which cause the mother the greatest difficulty are removed, and experience has shown that failures in its preparation are exceptional. In certain hospitals in Minneapolis, nurses who formerly prepared protein milk using essence of pepsin to precipitate the curd, and later passing the curd through the sieve three to six times, have informed me that the simplified method as given above is simpler, time-saving, the results are certain, and much tedious work is eliminated. For these reasons it is recommended to those who prepare protein milk routinely in large amounts as a time and labor saving method. Furthermore, to date the results obtained in feeding infants appear to be quite as good as those obtained from feeding protein milk made according to other technics.

In private practice the protein milk produced in this manner has been used successfully in many instances. It proves very efficacious in controlling diarrhea in breast-fed infants, and also is very valuable in controlling diarrheas associated with parental infections.

The curd prepared by means of lactic acid may be used in various ways, aside from use in protein milk. Often infants having too frequent stools when given breast milk alone, cease to have diarrhea if the curd is mixed with breast milk and fed in this form. The curd also may be added to the ordinary cow's milk mixtures in amounts desired with a constipating effect.

SUMMARY

To prepare protein milk by the simplified method add one teaspoon of lactic acid to one quart of cooled boiled cow's milk to precipitate the curd. Strain the curded milk through a cloth for fifteen minutes; then beat the curd into one pint of buttermilk with an egg beater. To this add one pint of water and sugar in any amount desired.

Physicians will find protein milk prepared in this manner of value in controlling colic and fermentative diarrhea in breast-fed infants obviating the necessity of weaning these babies. The milk is also of value in athrepsia, chronic intestinal indigestion, and in diarrhea associated with various parental infections. The method is sufficiently simple that the average mother is able to make protein milk satisfactorily at home.

Nurses will find the method time and labor saving, and certain in its end results.

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THE PRESIDENTIAL ADDRESS

In giving a running resume of Dr. J. Frank Corbett's address it would be impossible to get in all of the interesting and historical points that he has brought up. But he goes back for many years, many centuries, in order to tell us something about the progress and advance of the medical profession; and he suggests in his opening paragraph that the medical profession is apt to consider themselves a peculiar people, set aside from the common herd and possessed of special traditions, qualifications, and privileges. This is what the real people are beginning to think about us, and they are beginning to drop us for that very reason, permitting local and unscientific cults and unscientific medicine to enthrone them for a time.

Chaucer's doctor, who was a product of the fourteenth century, was a wise old man, and he believed in all kinds of things. But he was conceited, as we are today, and he loved his gold,—in other words, like the rest of us, he loved his fees. There are many interesting descriptions given in the address, too, of the methods in which the unfortunate sick person was treated and how many original experiments were made on criminals to prevent or to allay a hemorrhage due to deliberate cutting. They had very strange ideas,—but many of us have, too.

Dr. Corbett has shown in his address how many of the things we thought were comparatively new were naturally old. They have been improved in appearance and in technique, but many of the old ideas remain. It is interesting to note, too, the names of the men, and this is the true history of medicine, who developed between the fourteenth and sixteenth centuries,—those which were and which are now names with which most physicians are familiar. We are given, too, a glance at the attitude of the writers of the day, and how they abused physicians,—just as we are abused in the twentieth century, but in a different way. Quacks existed at that time and probably have existed for many centuries before, and we know that they are still with us. They deport themselves in much the same way as did the quacks of old; consequently, the cults that we have to endure today are simply the double cousins of the cults that existed centuries ago. Mystification, natural instinct, and a pleasing or a brutal personality are still factors in the practice of medicine today. The discoveries made by the earlier physicians were followed by those of a similar type of men as they came on in the various centuries. Beaumont, for instance, who was an isolated army physician, gave us our knowledge of the digestive functions because he saw the opportunity in a case of gunshot wound of the stomach, and we cannot change, today, the fundamental principles which he laid down.

Dickens had a lot of amusement out of his writings when he made ludicrous the attitude of the doctor and the lawyer; and even that idea has been handed down. The lawyer, now, is belittled for his one-sided and one-track mind, the doctor for his methods in expert testimony, and the people are enjoying the comparisons. Most of the important things in surgery and medicine are the products of the past few years. For that reason we should not be uneasy on account of the caricatures of the profession which establish themselves in the lay mind rather than the real value and worth of the medical service rendered. It is to be hoped that some day there will be a more general understanding of the medical man, as there is today among a certain class of people who appreciate what is done for them and the sacrifices the physician and surgeon have made, and realize, too, that the physician is not only skilled in his profession but is a man as well. We are simply going through one of the waves of progress, when it looks as if the medical profession was down in the trough but ready to rise on the next wave. It must be remembered, too, as Dr. Corbett says, that there are no supermen, very few 100 per cent men, and a great many men that can hardly be called men at all if we consider man to be endowed with an intellect. Consequently, we are obliged to do our best, in spite of the dissatisfaction, the disorder, and the misunderstanding and misinterpretation of service. We are not to be led astray or embittered by the numerous irregular methods of healing. They are simply shadows of the past. And some day when the committee on irregular medicine, appointed by the American Medical Association House of Delegates, sends in a report this can be given wide enough publicity so that it will educate the people to the attitude of doctors who are real doctors and not indifferent ones.

Dr. Corbett comments upon the medical graduates and their tendency to gather in the cities rather than go out in the country and make themselves a name by work, by personal initiative, and by earnest endeavor. Perhaps that is one of the reasons why the rural districts are short of doctors, for there are comparatively few men who care to "bury" themselves, as they say, in country work, where their need is apparent, but choose rather to bask in the spotlight of a city.

It is also called to attention that the doctor is somewhat at fault. He is indifferent, he is lazy, or he is too exalted to render personal service, and incidentally it might be said that he is too indifferent to the political needs of his section. He could do much to bring out a larger registration, and a larger vote at election time, and by his high standing in the community he could influence much of the legislation that is for the benefit of the people,—not necessarily for the benefit of the doctors.

Co-operation between all kinds of societies, the small county organizations, large district associations, large county societies, and the state medical association can, if they will, make an impression upon even the American Medical Association, thus bringing about a closer and better union between the parent organization and its component societies. If we would all work together for the common good of the people, let up on our so-called dignity and ethics, get into closer touch with the politicians and explain what we really want and why we want it the medical profession would be of greater use than it is at the present time. Dr. Corbett appreciates the fact that there are many well-organized societies but he is right in reiterating the necessity of keeping them organized and keeping the organization and cooperation idea continually before the medical men as well as the lay people.

FREAK MEDICINE

It is rather difficult at times to be temperate or conservative in one's statements when one reads a lot of rubbish that emanates from a man, to say the least, of peculiar mentality. The subject of antivivisection has again bounded into the public eye, to say nothing of its attitude toward the ear, for people visualize, when they think of vivisection, something that is horrible to contemplate. Among our recent distinguished(?) visitors is Dr. Walton R. Hadwen (his name should have been Hadwent), of Gloucester, England, who talks before a limited audience on his favorite topic, in which he makes very pointed statements,—the usual stock phrases of the antivivisectionist: first, that vivisection has never been of any value to the surgeon or the physician, that it has taught him absolutely nothing; second, that germ diseases are mythical; and, third, that the use of vaccine is not only useless but harmful, and he includes in his observations the use of vaccine against smallpox, showing that his mind is not only untrained, but unread. He has forgotten all about the manner in which the Germans stifled and eliminated smallpox by vaccination many years ago. He does not take into consideration the use of antitoxin for the relief of diphtheria or the autogenous vaccines which are employed in the cure of focal infection, and probably other vaccines which have their value more or less established. Evidently, the gentleman from England is having a perfectly beautiful time. He is traveling over the United States at other people's expense, seeing the country; and he is blowing his horn loudly and blatantly. Like the trumpeter from the top of the medieval castle, the sound of his voice, or his trumpet, is confined to a very small air space. But he is satisfied, probably sanctimonious and complacent, feeling that he is righting the nation's medical errors.

But then, admitting this man's visit from abroad, trips and speeches in the country, we have one of them at our own doorstep. One Dr.

Albert Abrams, of San Francisco, is credited with inventing a machine for testing the vibration of a blood cell, and, presumably, other cells in the body, and he has also perfected a machine called "the oscillator," which is tuned for the benefit of these various vibrant cells in disease, and he has a train of followers. He came on to Chicago, with a trail of advertising behind him, to testify, if the court would permit, which it did not, in the Poulin-Tiernan case, in the suit for the paternity of the child. Dr. Abrams was willing to publicly diagnose, from a drop of blood, the right parent. Failing in this, and declining to make a private blood test to determine this doubtful paternity, he is now propounding before the American Association for Medico-Physical Research some new theories of therapeutics. He must be an astounding diagnostician, for he claims to be able, through the study of the handwriting of the sufferer, whether dead or alive, to determine the disease from which he suffered and his vocation! He admits that his statements sound grotesque, but he also unblushingly admits that this is possible for one who understands the electronic theory,—whatever that is. He says all life is electronic energy, and evidently this can be transferred to paper and can be held up at any time to public view. And he offers, too, to combat this radio-activity of each disease by a process of counter radio-activity.

If these seemingly impossible conditions can be true, why are we here? And is it possible that all of San Francisco and California have been diagnosed, treated, and cured by this wonder man of the twentieth century? Those who followed the letters in the *Journal of the American Medical Association* a few months ago by the proponents and opponents of Dr. Abrams and his views will be interested in what this gentleman will be able to propound later.

We remember that years ago they diagnosed disease by examining the hair, and that a lock of hair enclosed in an envelope and sent by mail to some of these celebrated diagnosticians brought forth a response. Some of the methods which have been used during the past twenty years may have seemed at first blush wholly unscientific and entirely theoretical, and only those that had a sound scientific basis have been held to be true. But with all of our aëroradial and wireless telephone combinations it seems almost unnecessary for the physician to visit anyone who is ill.

The good Lord knows we are "hard up" enough as it is, but if these new theories come into vogue and are employed the doctor will have to change his vocation.

AN IMPERATIVE NEED FOR THE DOCTOR IN POLITICS

The time has come when the doctor must cast off some of his ethical trimmings and enter into politics as a citizen and as a worker. It should be his endeavor to overcome by persuasion, argument, and example the indifference of the people to registration and to the act of voting. The lassitude and lack of interest of the men and women who should vote have been more apparent in the last two years than ever before. This is due in part to a misunderstanding, as well as to an indifference to the grave situations which surround, not only the nation, but the state and the municipality. Unless something is done, in Minneapolis particularly, indifference and ignorance of the situation will prevail. It is highly important that the city charter, which comes up for discussion and for the attention of the voters, should pass in November without fail. Perhaps the doctors do not understand what the charter means, how it may help the city in its various departments, and how it will appeal to a better class of candidates. These things can be accomplished only by a personal endeavor, meeting and talking political situations over, and discussing the possibilities of the success of those who are positively radical in their views. It has been stated that unless 60 per cent of the largest number of votes cast are for the charter, for instance, it will not pass. To overcome this obstacle means work, unfailingly and willingly, and that should be the motto of everyone who is qualified to cast a ballot.

One thing that ought to present itself forcibly to our minds is the possibility of what will happen if the radicals win. Our taxes, already high and burdensome, may be increased to such an extent that business will be seriously injured, both large business and small, which ought to be sufficient argument to present to almost anyone. It has been stated, too, by those who are supposed to know, that only 11 per cent of the people who pay personal taxes are registered. That is an appalling situation. There ought to be 85 per cent of these people registered, and unless it is done on the twenty-eighth day of October they are not entitled to vote on November seventh.

EXPERIMENTAL EFFORT TO LOWER THE MORTALITY RATE

The various health boards of the country and particularly the American Child Hygiene Association, and the Child Health Organization of America, the National Child Health Council, the National Health Council, and the Commonwealth Fund,—all privately endowed foundations for child health work,—are to have a joint committee in various parts of the country who will have supervision over a town, to be selected, to test the possibility of lowering the mortality rate. And it has been generally conceded that St. Cloud may be the town in Minnesota selected for this purpose, although other towns have sent in their applications.

The Minnesota Public Health Association has already assumed a part of the committee work by the appointment of a large committee covering the Twin Cities and containing representatives from thirty-eight county societies. The formation of this committee is a very important part of the future success of the effort to save both mother and child and thereby materially lower the death-rate. This committee has already been announced.

Active in this matter is Dr. N. O. Pearce, Secretary of the Northwestern Pediatric Association and also a member of the Executive Committee of the Minnesota Public Health Association. The experiments which are to be carried out in various parts of the country will have no official connection with public health agencies, but the State Board of Health and probably other health activities will co-operate insofar as they are asked to do so. But this experiment is to be conducted entirely independent of public health administrations. The Northwestern Pediatric Association, which has been conducting clinics all over the state, has been a very active committee, and they have accomplished much in the educational line and in the teaching and method work among those who are particularly interested. This endeavor will co-operate with dentists, nurses, and laymen.

The selection of one town of sufficient size, like St. Cloud, which has a population of between fifteen and twenty-five thousand, will probably carry with it a permanent public demonstration bureau. And if all physicians, whether interested in pediatrics or other lines of medicine, will co-operate, the experiment will probably bring some very astounding results; and, if successful, as it doubtless will be, it will be copied by other cities. This makes the work of the pediatrist conspicuously prominent all over the United States. There is no other society that has such a hold upon communities and which is willing to expend so much time and effort to lower infant mortality. Unfortunately, in some places the intrusion of this organization may not be welcomed in the spirit it deserves. But as soon as medical men realize and appreciate that this is a great effort, which will revolutionize the care of children in the prevention of disease, either incidental or epidemic, they will, in every way, encourage the work of the committee. It ought not in any way diminish or take away the prestige of the general practitioner, but round out his work and make it much more effective. A cordial reception in place of a jealous opposition is the platform upon which all medical men should stand.

MISCELLANY

DR. J. D. ANDERSON

Dr. John D. Anderson, aged 67, one of the most widely known general medical practitioners in Minneapolis, died at 6 p. m. yesterday in Eitel hospital, six hours after he suffered a cerebral hemorrhage.

Dr. Anderson was stricken while talking with a friend in his office in the Syndicate block. The attack was unexpected; he had appeared in the best of health earlier in the day. The attack was not thought serious at first, but when he failed to improve, Dr. H. L. Staples, an old friend of Dr. Anderson, was called. Dr. Staples found the physician unconscious.

Dr. Anderson was born June 29, 1855, in Victoria county, Ontario, and was a graduate of Toronto University. In 1879 he went to Edinburgh, Scotland, where he took a postgraduate course, winning a gold medal for his work. He received other honors from London University and the Royal College of Physicians.

Dr. Anderson came to Minneapolis in 1882. The Syndicate Block was opened in that year; he was its first tenant.

Dr. Anderson was a member of the British Medical Association, the Hennepin County Medical Society, the Minnesota State Medical Association, the Elks' and the Minneapolis Athletic Club. He is survived by his wife, who before her marriage was Miss Jessie McGregor of Minneapolis, and two daughters, Mary and Jean Anderson. He made his home at Inglebrae, Medicine Lake. His Minneapolis residence was at 1920 Second avenue south.

DR. H. C. ALDRICH

Dr. Henry C. Aldrich, aged 65, a physician in Minneapolis for more than 30 years, is dead in California, according to word reaching relatives here last night.

Dr. Aldrich died Friday in Santa Monica, Calif., where he had lived for a year.

With Dr. Aldrich at the time of his death were his wife and son, Henry.

Funeral services probably will be conducted in California.

Dr. Aldrich was born in Minneapolis in 1857, the son of Mr. and Mrs. Cyrus Aldrich. He graduated from the University of Pennsylvania in 1879, and from Hahnemann Medical College and Hospital in Philadelphia in 1881. He was clinical professor in diseases of women at the University of Minnesota for some years, and later was registrar of the American Institute of Homeopathy. He was formerly president of the American Association of Orificial Surgeons, Minnesota State Institute of Homeopathy and Minneapolis Homeopathic Society, and was surgeon of the Minneapolis City Hospital from 1897 to 1905.

NEWS ITEMS

Dr. H. P. Bacon has moved from Milaca to Minneapolis.

Dr. G. H. Walker has moved from Fairfax to Minneapolis.

Dr. C. V. Lynde has moved from New London to Chokio.

Dr. W. T. Cain, of Underwood, N. D., has moved to Los Angeles, Calif.

Dr. F. C. DeVale, of Garretson, S. D., is erecting a hospital building to cost $10,000.

Dr. J. C. Wilkinson, of Red Lake Falls, has sold his practice to Dr. J. A. Roy, of Argyle.

Dr. O. S. Wyatt, of Minneapolis, was married last month to Miss Ann French, also of Minneapolis.

Work has been started on the new wing of the St. Joseph's Hospital of Brainerd, which will cost $50,000.

The Waseca County Medical Society has endorsed Dr. Janis F. Lynn for congress. There are 350 doctors in the district.

Dr. Charles E. Proshek, of New Prague, has moved to Jordan and become a member of the staff of the Jordan Mud Bath Sanitarium.

Dr. B. F. Simon, St. Paul City Health officer, has been authorized by the City Council to visit eastern cities to inspect their health systems.

The Bowdle (S. D.) Community Hospital Association has voted to build a community hospital at once, the building to cost about $7,000.

Dr. A. W. Swedenburg, of Thief River Falls, has begun work on remodelling a hotel building recently purchased by him for hospital purposes.

Dr. A. S. Jackson, formerly a fellow in surgery in the Mayo Foundation, announces his association with the Jackson Clinic of Madison, Wis.

The annual meeting of the Minnesota State Medical Association is in session in Minneapolis as this issue of The Journal-Lancet goes to press.

Dr. R. H. Sweetman, formerly of Menahga, has begun work in Sauk Centre, and the hospital controlled by him is now open to all physicians in that city.

Dr. Fred B. Clarke, who has practiced for the past six years in Billings, Mont., has moved to Los Angeles, Calif., where he will specialize in internal medicine and diagnosis.

Dr. John D. Anderson, of Minneapolis, died a few days ago at the age of 67. We give, on another page, further notice of Dr. Anderson's life, taken from a Minneapolis paper.

The annual meeting of the Red River Valley Medical Society, which was held last month at the Oakland Park Tuberculosis Sanatorium, was given over to a discussion of tuberculosis.

Dr. Henry O. Ruud, of Alexandria, has sold his practice to Dr. E. Tanquist of Minneapolis. Dr. Ruud will take a special course in eye, ear, nose, and throat work and specialize in that line.

Dr. Walter R. Hadwen of London, England, is in this country speaking against vivisection under the auspices of the American Medical Liberty League. He spoke in St. Paul last month.

Dr. O. R. Wright, of Huron, S. D., who served with the French Base Hospital No. 32 during the World War, has received from the French Government a medal for distinguished service.

In order to raise the additional $300,000 required to complete the buildings planned for the Glen Lola (Hennepin County) Tuberculosis Sanatorium, a vote of the people will be required, the attorney general rules.

Dr. R. M. Gamble, a graduate of the Medical School of the University of Minnesota, class of '21, has located in Ellendale. Dr. Gamble spent a year in the St. Paul City Hospital and Walter Reed General Hospital (Washington, D. C.).

Dr. D. W. McDougald, of Le Sueur, has sold his practice to Dr. S. Erickson, of Elmore. Dr. McDougald is in New York City, where he will spend a year in eye, ear, nose, and throat work, in which he will specialize in his future practice.

The American Legion Hospital Association, which is to build a Legion hospital at Rochester, Minn., was incorporated last month. The incorporators are two Minneapolis and two St. Paul business men, and one Duluth and one Rochester man, respectively.

Dr. J. W. Gamble has moved from Rochester to Albert Lea. Dr. Gamble is a graduate of the medical school of the University of Minnesota, class of '18. He served in the World War, first in the Great Lakes Naval Training Station and then on a transport.

Montana is to vote this fall on a state compensation law to aid ex-service men, and it is now almost certain that such compensation will be granted and that much of the money will be donated by the ex-service men for a soldiers' memorial hospital.

A mobile corps of surgeons and assistants is to be maintained by the Shriners to visit the smaller cities and towns of the United States, Canada, and other countries to give instruction to orthopedic surgeons in such places, and to treat children who cannot go to a hospital.

The laying of the corner-stone of the children's hospital, now under construction in Minneapolis, by the Shriners last month was a brilliant affair. Work on the building is going on rapidly, and it will be only a few months before this magnificent hospital will be ready for patients.

Dr. Fred L. Adair, of Minneapolis, and Drs. Everett C. Hartley and Walter R. Ramsey, of St. Paul, are the Minnesota delegates to the American Child Hygiene Association, now in session in Washington, D. C. Dr. E. J. Huenekens, of Minneapolis, is on the program for a paper.

Dr. E. P. Lyon, Dean of the Medical School of the University of Minnesota, announces that at the opening of the Todd Memorial Hospital, which will begin work within a year, the Medical School will be one of the country's most important centers for the study of diseases of the eye, ear, nose, and throat.

Dr. O. E. Locken, of Crookston, has been appointed chairman of the Committee on Public Health of the League of Minnesota Municipalities. The other members of the committee are Dr. W. F. Bleifuss, Rochester; Dr. W. W. Lindsay, Winona; Dr. O. W. Parker, Ely; and Dr. O. J. Seifert, New Ulm.

Dr. Henry C. Aldrich, of Minneapolis, died last month in California at the age of 65. Dr. Aldrich was born in Minneapolis and had practiced here for thirty years. Dr. Aldrich was a graduate of the Hahnemann Medical College and Hospital of Philadelphia, class of 89. Full notice of the work of Dr. Aldrich appears on another page.

Colonel Herman A. Metz, known generally to our readers as the head of the Metz Laboratories, has been nominated, in New York City, for Congress. Colonel Metz is a successful doctor in both business and politics. He has already been in Congress and was the first controller elected in the city of Greater New York. The people need more such men.

At the September meeting of the St. Louis County Medical Society Dr. E. L. Tuohy, of Duluth, who recently returned from Europe, gave his impressions on the Political Conditions in Europe, and spoke of the present conditions of the clinics. Dr. A. N. Collins, of Duluth, discussed "Some Aspects of Social Medicine." These are, indeed, live topics.

Becker County held a series of free health clinics last month, arranged by the county nurse. The tuberculosis clinics were conducted by Dr. P. W. Bowdish, of the Band Beach Sanatorium, and the children's clinics by Dr. Gangness, of the Pediatric Department of the Medical School of the State University. Only two short of 800 adults and children were examined.

The plan of Hennepin County to provide quarters in St. Louis Park for all the County's incipient tuberculous patients, reserving Hopewell for chronic cases, seems fair to be carried out.

The visit of Dr. Robert Barany, of Vienna, to Minneapolis, was a great success, and members of the medical profession, inside and outside of the American Academy of Ophthalmology and Oto-Laryngology, profited by his extended presence in the Twin Cities.

The annual meeting of the Soo Surgical Association was held at Minot, N. D., last month. The attendance was good, and the program was composed of papers dealing with the every-day experiences of physicians and surgeons. The following officers were elected for 1923: President, Dr. John V. R. Lyman, Eau Claire, Wis.; vice president, Dr. Alfred M. Ridgway, Annandale, Minn.; secretary-treasurer, Dr. John H. Rishmiller, Minneapolis. The next annual meeting will be held in Minneapolis.

Dr. Orin S. Pine, of St. Paul, died last week at the age of 77. Dr. Pine was a Civil War veteran, with the distinction of having been a prisoner in Libby prison and of having escaped while being transferred to Andersonville. He graduated from Bellevue, with the class of '70, and came to Minnesota soon afterwards. Dr. Pine was surgeon of the Minnesota Soldiers' Home for a number of years and was assistant city physician of St. Paul for two terms. In 1888 he married Dr. Alcinda Auten, of St. Paul, who survives him.

The Red River Valley Medical Society held its regular meeting at the Oakland Park Sanatorium, Thief River Falls, Minn., on Thursday, September 14, 1922. The following program was rendered: "Clinics on Pulmonary and Laryngeal Tuberculosis," Dr. M. Geo. Milan, Thief River Falls; "Classification of the Pulmonary Tuberculous Individual," Dr. M. Geo. Milan, Thief River Falls; "The Uses and Limitations of the *X*-ray in the Diagnosis of Pulmonary Tuberculosis," Dr. O. N. Meland, Warren; "The Value of Rest in the Treatment of Pulmonary Tuberculosis," Dr. F. F. Callahan, Pokegama; "Surgical Tuberculosis," Dr. Emil S. Geist, Minneapolis; "The State Campaign Against Tuberculosis; Its Accomplishments and Its Future," Dr. Robinson Bosworth, St. Paul.

MINNEAPOLIS OFFICE FOR RENT

Very desirable suite of offices, suitable for physician or dentist, sharing reception room with another physician. Inquire Dr. Ernest Z. Wanous, 408 Masonic Temple, Minneapolis.

POSITION WANTED

Registered nurse with experience as anesthetist wishes position in dentist's or physician's office. Will go out of city. Best of references. Address 293 at this office.

HOSPITAL DIETITIAN WANTS POSITION

An experienced dietitian, capable of taking charge of the dietetic work in any hospital, desires such work in the Twin Cities. Can give the best of references. Address 278, care of this office.

X-RAY TECHNICIAN WANTS AFTERNOON WORK

An *x*-ray technician with experience in large hospitals desires afternoon work in Minneapolis or St. Paul. Best of references. Address 279, care of this office.

PRACTICE FOR SALE IN MINNESOTA

A practice in a Minnesota village of 600, in a rich section of the state. Competition 15, 18, and 22 miles distant. Territory has averaged $5,000 to $8,000. Collections good. Practice and residence and office combined are offered at a bargain. Address 283, care of this office.

AUTO, VICTOR WALL PLATE, ETC., FOR SALE

I offer for sale the following things left by my late husband: A 1920 B-30 Model Chevrolet 4-passenger coupe (cost $2,000 and has been run very little) for $850; a Victor Wall Plate (cost $100—in perfect condition), for $40; and a lot of homeopathic medicines very cheap. Address Mrs. O. W. Fisher, 4050 Blaisdell Ave., Minneapolis.

SURGICAL NURSE WANTS POSITION

A surgical nurse with two years' experience in a city office, aged 29, desires position with up-to-date physician as office assistant. Experienced anesthetist; can do bookkeeping, laboratory work, etc.; until recently superintendent of a hospital near the Twin Cities. Best of references. Salary moderate if associations are congenial. Address 286, care of this office.

PRACTICE FOR SALE

I offer for sale my practice of about $6,000 in a South Dakota town of 1,000, with only one other physician and two nearby towns with no physician; county seat and large country practice; good schools, churches, sewerage, water, lights, modern three-room office suite. Value increased by surgery. Thirty miles from excellent hospital; on two auto trails. Will sell cheap. Leaving to specialize. Address 288, care of this office.

PHYSICIAN WANTED

North Dakota town of 300 population, fine territory and good crops. Nice office rooms. Good man can make from $7,000 to $9,000 a year. Must be able to locate at once. Address 291, care of this office.

SOUTH DAKOTA PRACTICE FOR SALE

A $6,000 practice in modern town of 1,200 in eastern South Dakota, one other physician. Practice can be increased by surgery. Must be sold at once, will sell at your own price and terms. Will stand investigation. Going to specialize. Address 289, care this office.

EXCELLENT LOCATION IN MINNEAPOLIS FOR PHYSICIAN

Best transient office in city. Downtown, easily accessible, excellent space, well arranged, finely furnished, complete equipment, no competition. Located on a busy corner; and a $500 per month cash business can be done from the start. For a physician who wishes to locate in the city and make more than a living from the start this office and practice cannot be beat. Present lessee has entered government service. Will sell or lease all or part of furniture and equipment. Address 285, care of this office.

LABORATORY TECHNICIAN WANTS POSITION

University senior with special work in Bacteriology and Biochemistry with actual experience in clinical work, desires position in Twin Cities. Address 290, care of this office.

YOUNG PHYSICIAN WANTED

One who has had hospital experience is wanted for salaried position in a small town in South Dakota on coast line of Milwaukee Railway. Address 284, care of this office.

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TRAUMATIC SURGERY AND COMPENSATION*

By ARTHUR W. IDE, M.D., F.A.C.S.
ST. PAUL, MINNESOTA

At a recent meeting of the American College of Surgeons, one of the speakers stated that there was no such thing as "Industrial Surgery." Neither is there, nor should there be, such an institution as an *industrial hospital.*

This speaker was looking, undoubtedly, at certain medical problems from his own angle. The officers of industrial organizations, as well as the officers of some of our leading medical schools, do not view this subject in this way. This speaker, no doubt, had in mind the fact that the treatment of injury and disease is practically the same in industrial and civil life. There is apparently no difference in treating the man who sustained a Pott's fracture while working in a shop and treating the same injury sustained by this man's wife, who fell down the cellar stairs. Is there really any difference in the two problems? Perhaps not very much, looking at the matter from what we might consider a purely professional standpoint. There are, however, certain economic aspects entering into this medical problem.

I am told that one of the most prominent men of the Northwest developed a fatal septicemia from an abscess while surgical consultants were being brought from a distance. Had one of our Italian track-men had the same condition, he would probably have had the abscess drained by a junior house officer and lived. Social relations, station in life, business, and family responsibilities make great differences in our medical problems.

Employing officers are vitally interested in the welfare of their men when they are sick and injured. These officers are usually men who have spent years in the service in order to earn promotion. They have served as apprentices and have worked their way up. They have worked side by side with many of their subordinates and feel keenly all their problems. This interest is essential to a proper working spirit between officers and men when they are in intimate contact. If a man is disabled, the officer's first duty is to see that he is properly cared for. Aside from the human interest which exists between officers and employes there is a definite responsibility in the care of the injured.

One of the important questions to ask in taking a history is whether or not the patient attributes his disability to an injury. If the answer is affirmative, then the case must be carefully investigated by the proper officers to determine whether or not there is responsibility on the part of the employer. This responsibility is recognized very definitely by our state compensation boards. This is a matter which is familiar to most practitioners. Not all industries, however, come under the authority of these boards.

If the officers of the employing company are to pay the bills, it is only fair that they have something to say about the care of the patient.

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*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

It is altogether proper that they are assured that everything is being done to expedite the recovery of the patient. Most of our industrial corporations at the present time have some arrangement for the care of their sick and injured employes.

We see on every hand evidences of propaganda for the education of the laity along medical lines. It is merely another phase of this work when we show these officers our results in the treatment of their injured. These men are high-type men who have a broad grasp of affairs and quickly see the advantage of proper medical care for their men. They do, however, view these subjects from an entirely different standpoint than that of the medical officer. They are not bound by the same traditions as the medical men. They are in the habit of insisting upon results. They have no quarrel with the various cults and pathies. If there is good in any of these things, they can see no reason why they should not use them. They are not altogether satisfied with the old idea that "The doctor knows best." It has occurred to me that there is a wide variation in the viewpoint of these men and the viewpoint of the doctor. This is, I believe, particularly true with reference to the officers who have to do with compensation adjustments. These matters are handled by a department that is not in close touch with the patient. The man who is responsible for the financial settlement usually first meets the patient after he has entirely recovered. Quite often he never sees the patient at all, but gets his information from files and reports that are brought to him in his office. It is little wonder that his view of the case is different. This officer is forced to look at this matter from a strictly commercial point of view. To him it is a question of disposing of the case for a certain amount of money, considering the legal points involved, the responsibility of the corporation, whether or not a gratuity should be granted this individual, the employe's record, length of service, loyalty, etc.

For the purpose of discussion, would it not be worth while for us as medical men to reduce this matter for once to a strictly commercial basis. No sane man is willing to place a price on his right arm. It is often difficult to convince a man that he should sell a pint of his blood. Still, when a patient has sustained an injury, the account must be settled, and the responsible employer must pay the bill. Just how is the exact amount to be paid to be determined? Has our treatment of the case influenced in any way the financial settlement? It certainly has. Does our treatment ever increase this amount rather than decrease it? Is it not true that what costs the employer least is best for the patient? Then, is not money the measure of service even in the medical profession? Then, in the last analysis, must not our results be measured in dollars and cents? Is a surgeon ever justified in amputating a foot simply because of the cost of more conservative treatment? This question will be answered by most people, positively no. But suppose, for example, the patient is a young man with several small children. He is on his own financial resources, and his funds are low. How long can he stand it to be out of his job? Unless he can be helped in some way, his time must be short. I believe most of us, if we were so situated, would insist upon amputation if by this means we were put back to work in a much shorter time. We might be willing to give six months' time for a serviceable foot, but would we be willing to multiply this six months two, three, or four times? There is a vast difference between a clean amputation and short convalescence, and reconstruction work on an injured foot and months of convalescence.

RECONSTRUCTIVE SURGERY

It is hardly worth while to burden you with the recital of the brilliant results that have been attained through modern reconstructive surgery. I do not wish in any way to detract from the honor of the men who have done this work. It is, however, no heresy to consider the disadvantages, as well as the advantages, of some of these procedures. The only way to reach a proper decision in an individual case is to balance the advantages with the disadvantages. Is it not possible that modern surgery is going to extremes in recommending the saving of tissue? Is it not true that mangled limbs are being left on when an amputation would be better judgment?

EXPENSE

If a corporation is standing the financial burden, the item of expense will ordinarily be disregarded. In a hospital maintained by a corporation, the question of hospital expenses does not enter into the consideration. In these institutions there is a certain overhead expense, and a few patients more or less make little difference in the total cost. If, however, there is a per-diem charge, the expense may run to a considerable sum of money. If the patient is an ordinary working man and there is any danger that he will be held personally responsible for these bills, they are worth considering.

LOSS OF TIME

It is a serious matter to hold the average man in a hospital for a long period. When a man is first put to bed he chafes under restraint, but as time goes on he becomes more and more reconciled to his lot. He is taught to loaf, and there is great danger that he will learn his lesson too well. It sometimes happens that by the time he is discharged he is a first-class loafer. He may also have in mind the question of compensation, and this tends to make him more dependent. As time goes on he dwells more and more on this subject and you have all seen the result. The only thing that will cure him is a good check or a verdict from a jury.

Much is being done along the line of re-education for these people. The States of Minnesota and North Daokta are spending a good deal of money in helping these handicapped individuals. I do not believe that the medical profession fully realize the benefits that patients can derive from this support. These people are handled in much the same way as the ex-service men. They are placed in various institutions of learning, or they may be taught in a hospital. They are given some trade or occupation that fits in with their previous experience and with their handicap.

Occupational therapy is an aid in solving many of these questions. It is somewhat difficult to handle this subject, especially in the smaller institutions. Trained workers are needed and some special equipment. I believe the treatment of these people in open wards is beneficial. These patients will soon learn of someone who is in as bad or worse condition than themselves, and their sympathies are aroused for others. I think that when a patient is able to stand the disturbance of a ward he is much better off in a ward.

SUFFERING

The suffering that reconstructive surgery entails is worthy of consideration, as are also the number of times a patient has to submit to operation, the type of anesthetic, etc. I have been interested to know the opinions of officers on the question of local anesthesia. A local anesthetic is often described as "no anesthesia," and it is said that "the patient stood for the operation." This can be emphasized particularly if the matter is brought up in court. If a patient says he suffered pain during an operation and the fact is brought out that he was not given a general anesthetic it is impossible to refute the argument.

FOCAL INFECTION

I do not believe that the danger of focal infection in traumatic work is being sufficiently emphasized. We have been told for many years the danger of prolonged suppuration and more recently the danger of devitalized teeth and infected tonsils. Our patients are being questioned carefully with regard to previous infections. Is it not possible that prolonged suppuration in wounds may cause ulcer of the stomach, gallstones, etc.?

DANGER TO LIFE

Every surgeon of experience has had occasion to regret his conservatism. We can all recall cases where a timely amputation would have saved a life. I can recall a case of severe burns of the legs where a double amputation was done too late.

This whole matter was recently brought to my attention while discussing one of my cases with the official who paid the bill,—a matter of nine thousand dollars. This patient sustained a severe compounded comminuted fracture of the femur. The distal end of the proximal fragments protruded through the skin and clothing and into the ground. The accident occurred on the railroad about thirty miles from the hospital. The train was left on a side-track, and the engine with the caboose hurried the patient to us. We immediately etherized the patient, reduced the fracture, maintained the position with a Parium band, did a débridement, and Dakinized the wound. The infection in this wound was limited, but a rather chronic osteomyelitis developed. The band and several sequestra were removed later.

This patient was under treatment for approximately two years, but the leg was saved. He had a stiff knee with some shortening. All in all, the results were satisfactory from our point of view.

I was interested to know how this case appeared to the interested non-medical officials. Just how would they determine the amount of money that was to be paid to this patient? In this case, there was two years' disability. His wages under ordinary circumstances would be figured for this length of time. During this treatment, it would also be fair to assume that there was a considerable amount of suffering.

There were four ether anesthesias. On four other occasions there were minor operations performed on this leg. It is fair to assume that there was considerable suffering when ether was not used. For the purpose of settlement it will ordinarily be assumed that this patient cannot return to his ordinary occupation. During two years the patient carried a suppurating sinus in his leg. It would be interesting if we could determine how much it would have cost the company had this leg been amputated. Compensation officers, in estimating a case such as this, take all these matters into consideration. They have had considerable experience and can estimate with a fair degree of accuracy how much a given case would cost them if it went to court. The question arises, could this case have been settled for a lesser amount had this leg been amputated? If so, then the layman would criticize my treatment and say that this man would have been better off to have lost his leg in the first place.

DISCUSSION

Dr. George M. Williamson (Grand Forks): This is a very interesting subject Dr. Ide has presented and one that has not been given sufficient consideration in the past.

In the industries, especially, it is important that every workman be kept in condition for the performance of his regular duties, and when one gets injured it is important to the employer that he receive competent treatment and be returned to service at the earliest possible moment.

During recent years the field of traumatic surgery has developed in importance. Workmen who have been incapacitated by injuries of various forms have been reclaimed and by careful surgical treatment restored to their former occupation, or put in a condition to be self-supporting.

The employer must depend on the judgment and skill of the surgeon employed to give his employes proper attention. The first examination of all cases of injury should be thorough and painstaking, and careful notes taken of every abnormality and injured part, and inquiry should be made into the history to learn about previous illness or injury. In this way we can learn much about the patient's past habits and mode of living, and very often our course of treatment can be determined by the information thus obtained and the progress of the case estimated.

Again, the layman does not consider these cases of injury from the scientific view-point as does the skilled surgeon, and sometimes he gets extremely anxious regarding the progress of the case. He wants action all the time on the part of the surgeon, and it is our duty to be attentive and interested, to keep in close touch at all times with the progress of the case, and be ready to render a report whenever asked for. We also must be on our guard in the management of these cases, for it frequently happens that damage suits arise even from apparently trivial injuries, and on our judgment of the case and skill used in handling the same will depend their disposition.

The problem of compensation in connection with the injured is a complex one, and one that causes the surgeon of to-day much serious thought. We are asked by State Compensation Bureaus and Indemnity Companies to report on cases and I have found it no easy matter to determine a fair and equitable compensation for the injured. If an injury is received so as to incapacitate the workman to an extent so that he is able to perform his regular service only in part, in estimating his future earning capacity all factors connected with his work must be taken into account and the amount of compensation awarded that is just to all concerned.

Industrial corporations employing large numbers of men are anxious that just and equitable settlements be made. The surgeon's part in effecting a settlement is very often of great importance.

Dr. Ide has called to our attention some very important points, which should receive careful consideration.

The Workmen's Compensation Bureau of our State and Indemnity Companies depend on the members of this Association for information on which they can base a settlement of all claims for injury arising from any cause while the workman is employed. Our reports should be complete in every respect, unbiased and clear; on the character of these reports settlement of claims is made and compensation allowed.

COMPLICATIONS OF PROSTATECTOMY*

By Franklin R. Wright, M.D., F.A.C.S.
Associate Professor in Urology, University of Minnesota
MINNEAPOLIS, MINNESOTA

Prostatic surgery is an interesting field. All men who do general surgery are called upon to take care of such cases. The fact that these patients are all advanced in years makes a knowledge of all phases of the pre-operative care, operation, and post-operative care doubly necessary. The pre-operative care is very important. Increased knowledge of proper preparation of these patients for the operation has been followed by an ever-decreasing percentage of operative mortality.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

Whenever there are 100 c.c. of residual urine in the bladder, the urine backs up in the ureter and fills the pelvis of the kidney. The kidney becomes so accustomed to this back-pressure, which has gradually developed in its pelvis, that it is able to perform its functions reasonably well. If this pressure is removed too rapidly by cystotomy and catheterization, the patient is apt to become uremic.

Functional kidney tests have, in my opinion, no value in deciding whether or not these patients may be safely submitted to an operation. Why waste time and energy deciding a question with the answer already before us? The fact that the patient is alive and in such a physical condition that we would consider operation, is positive proof that the function of his kidney is sufficient to support his life. Functional tests are of the greatest value in cases of surgical kidney, and should be reserved for them. Prostatic patients all have residual urine in the bladder, and back-pressure in the pelvis of the kidney. The question to be answered is, Will the kidneys of this patient continue to support life after the residual urine in the bladder and back-pressure in the pelvis of the kidney have been removed? The answer to this question is best obtained by the judicious use of a catheter.

Complications of prostatectomy naturally divide themselves into three groups: Those which occur at the operation, those which occur immediately following operation, and those which take place during the healing process.

Those which occur at the time of the operation are the accidental opening of peritoneum and hemorrhage. Accidental opening of the peritoneum is not uncommon, nor is it always avoidable. In a certain percentage of cases the peritoneum dips down very low over the anterior surface of the bladder to which it may be quite firmly adherent. In attempting to raise the peritoneum, in order to uncover the surface of the bladder sufficiently to open it, the bladder is not infrequently torn. This accident is not of a serious nature. If the bladder has not already been opened, so that the operative field is aseptic, it is better to put forceps on the edge of the tear and finish the dissection before the opening in the peritoneum is closed. If, however, the bladder has already been opened, the tear should be closed at once.

Hemorrhage at the time of operation may be anything from a slight loss of blood to one which threatens the patient's life. The blood comes from any or all of three points.

In enucleating the tumor from the prostate, the mucous membrane of the posterior urethra, from its junction with the mucous membrane of the bladder to a point just above the verumontanum, is entirely removed. Troublesome hemorrhage may come from the edge of the bladder's mucous membrane, where, during the enucleation, the urethral mucous membrane was torn from it; or it may come as a general oozing from the surface of the cavity from which the tumor was enucleated. Neither of these two forms is of a serious nature. The blood vessels in the torn margin of the mucous membrane are easily picked up and ligated, or a suture may be thrown around them. Bleeding that comes from the cavity from which the tumor has been enucleated is controlled by packing. This packing should fill the cavity firmly, not too tightly, and should be kept in place by a pack of gauze left in the cavity of the bladder. Linen thread should be attached to each piece of gauze and drawn out through the abdominal wound to facilitate their removal. The gauze pack which is placed in the bladder should be removed at the end of twenty-four hours. The gauze which is packed in the wound in the prostate should not be removed, but should be allowed to loosen and work back into the bladder, from which it can be removed without force on the fourth or fifth day.

The third form of hemorrhage is of a serious nature. If, in our efforts to enucleate the tumor from the prostate, we tear by accident through the prostatic sheath that atrophic portion of the prostate which surrounds the tumor, we open directly into a venous plexus, and the hemorrhage that follows is truly alarming. This hemorrhage may be controlled by packing. The prognosis in these cases is not good. We can control hemorrhage, but, as practically all these bladders are septic, the clots which form under the packing in the torn veins become septic, and patients die of general sepsis about the fifth or sixth day.

Complications immediately following operation are uremia, reflex conditions, and infections.

If a patient has been given careful preparation, uremia is not apt to occur, so that we may say treatment of post-operative uremia is prophylactic and consists of thorough pre-operative preparation. In cases in which pre-operative preparation has not been carefully carried out, a dryness of the patient's tongue will become noticeable on the second or third day after operation, and on the fourth or fifth day we will notice a marked diminution in the amount of urine secreted. In the after-care, careful observation of the condition of the tongue as to moisture should be emphasized. The first indication that we have of approaching uremia is a dryness of the tongue. The time to combat uremia is when the tongue begins to be noticeably dry, and not after constitutional symptoms have developed. Treatment in these cases consists of forcing fluids and in administering diuretics. Diuretin in 15-grain doses, three or four times a day, has given me the the best satisfaction.

The reflex complications are two: Occasionally, a patient will be troubled with hiccough so severe that he will be unable to sleep or obtain any rest, This is due to reflex irritation from the drainage tube in the bladder. If the tube is removed, its position is changed, or it is drawn part way out so as to relieve the pressure on the posterior bladder wall, the hiccough stops immediately. The second symptom is gastric dilatation. I have seen two cases of acute gastric dilatation similar to that which follows operations within the abdominal cavity. These patients were treated by gastric lavage and the administration of pituitrin hypodermically, and both made quick recovery.

Infections following operation do not attack the bladder itself or the wound in the prostate, but occur in the neighboring organs. The most frequent is epididymitis. Some men report that as high as 50 per cent of their cases have developed epididymitis. In my own work, this complication has been infrequent, not more than 5 per cent.

With the operative work in the posterior urethra it is easy to understand that the region of the posterior urethra, where the ejaculatory ducts open, may become inflamed. This is particularly true in those cases where a catheter is left in the posterior urethra as a part of the dressing. The methods by which infection is carried from the posterior urethra to the epididymis is interesting. The ejaculatory duct is a termination of the vas deferens, and the sphincter, which controls the seminal vesicles, is found in the urethral mucous membrane. The vas deferens is a muscular tube, in which there is a constant peristaltic wave to assist in the passage of the spermatozoa from the testicle to the seminal vesicles. It has been proven experimentally that a sharp blow on the epididymis or squeezing the testicle will cause a temporary reversal of the peristaltic wave, so that, instead of running from the epididymis to the sphincter in the posterior urethra, the peristalsis runs from the sphincter to the epididymis. In this way bacteria that have entered the ejaculatory duct, due to the fact that mucous membrane of the posterior urethra is inflamed, may be carried mechanically from the sphincter and deposited in the epididymis, thereby causing direct infection. Epididymitis in these cases is troublesome and quite painful, but rarely is it serious. Occasionally the condition will go on to formation of an abscess, which must be opened and drained. Epididymitis is best treated by elevating the testicle and applying moist heat.

There is little danger of peritonitis. If the peritoneum has been torn accidentally, and the opening closed before the bladder is opened, infection cannot take place. In the cases where we have a septic bladder and accidentally tear the peritoneum after the bladder has been opened, infection rarely takes place, because the long standing inflammation in the bladder has produced a partial immunity to this particular infection. There is, however, another method of infection of the peritoneum. On my service at the University Hospital, I recently had a death from general peritonitis in a case where during the operation we did not make, as far as we know, any opening in the peritoneum, neither was any opening found in the post-mortem examination. This patient had been in the hospital long enough to be given careful preparation. He had a urine loaded with pus, but had no clinical symptoms of cystitis, nor had he had an acute exacerbation of his chronic condition within the last several weeks. At no time during his pre-operative stay in the hospital did he have either a rapid pulse or a rise of temperature. During operation nothing out of the ordinary took place. Twelve hours after operation he began to develop moderate increase of temperature (103 degrees) rapid pulse and rigidity of his abdomen and he died at the end of the second day. Post-mortem diagnosis of septic peritonitis was made by the Pathological Department of the University of Minnesota.

A third form of inflammatory complication is a post-peritoneal septic lymphangitis. These patients begin about the fourth day after operation to run a temperature; the pulse is rapid; the tongue becomes brown and dry. They offer the clinical picture of a septic patient. On examination nothing will be found wrong with the wound. Rectal examination shows a slight bogginess and tenderness about the prostate and as high above the prostate as we can reach. Deep pressure on either side of the spinal column elicits marked tenderness as high as the umbilicus. The abdomen is not distended, and there is no rigidity of the abdominal muscles.

I have seen this condition four times,—in three cases in my own practice and one in consultation. Three of these men were over sixty years of age. Of my own cases, one followed prostatectomy, one followed catheterization where the patient during an attack of retention of urine was anesthetized and forcibly catheterized with a metal catheter. The symptoms began four days after the catheterization and one week before I saw him. One, a young man, followed stretching of a very narrow stricture. This ran a course of about sixty days, very similar to typhoid fever, and the patient ultimately recovered. The case seen in consultation followed the use of a lithotrite. The patient was about sixty-eight years old. Of the four cases observed, the three, all men over sixty years of age, died; one, a young man of 27, recovered.

The third group are: slow closing of the suprapubic wound and obstructions at the outlet of the bladder. Failure of the suprapubic wound to close in a reasonable time may be due to obstructions at the neck of the bladder or to the fact that, when the drainage tube was placed in position, the bladder wall was sutured too tightly about it. This will cause pressure necrosis on the edge of the bladder wall, and will leave a wound which heals very slowly. One of the niceties of suprapubic prostatectomy is to be able to close the bladder about a drainage tube sufficiently tight to keep the patient dry until the tube is removed, at the same time not tight enough to cause pressure necrosis on the edge of the bladder walls.

Obstructions in the neck of the bladder occurring during the healing process are two. The first and simplest one occurs occasionally where packing has been used to control hemorrhage. In introducing the packing, the torn edges at the proximal end of the urethra are forced together by the gauze packing, and will unite. In order to prevent this we must pass a large catheter as soon as our packing is removed, or about the fifth day.

In the second form we have the mucous membrane of the bladder drawn across the internal meatus, like a diaphragm, and closing it completely. In order to understand the manner in which this takes place it is necessary to review, briefly, the healing process. When we enucleate the tumor the prostate contracts like a uterus that has just been emptied. The mucous membrane of the posterior urethra from the internal sphincter to the verumontanum has been removed with the tumor. In a few days this wound surface is covered with granulation tissue. After cicatrization begins the epithelium from the proximal end of the torn urethra runs up toward the bladder, covering part of this granulating surface. At the internal meatus, instead of the epithelium running down from the bladder to cover the upper end of the urethra, we find that under normal conditions the mucous membrane of the bladder draws down into the urethra like a funnel until it meets the epithelium coming up from below. In this way a new posterior urethra is formed, which is covered partly by the mucous membrane of the bladder and partly by the epithelium. In certain conditions the causes of which are unknown to me, the bladder's mucous membrane, instead of drawing down into the posterior urethra like a funnel, draws across and completely closes the meatus. In cases where this diaphragm forms, the epithelium from below will come up and cover the entire granulating surface.

The time when the obstruction occurs, varies. I have seen it as early as sixteen days, and as late as ninety days, after operation. Twice I have been compelled to re-operate on patients before they left the hospital.

The diagnosis of this condition is easy if one case has been seen and recognized. A catheter passes easily until it apparently has reached the bladder. Here it meets an elastic obstruction.

This condition demands operative relief. The operation, however, is neither difficult nor dangerous to the patient. The bladder must be reopened and a sound passed through the urethra, so that its point will cause a bulging of this diaphragm toward the bladder. This bulging mucous membrane is picked up with a small vulsellum forceps, and the sound is partially withdrawn, and with curved scissors the piece of mucous membrane is cut away. Then the patient requires no special after-care because the urethra has already been covered with epithelium from below. The only raw surface left is the edge of the thin mucous membrane.

DISCUSSION

Dr. J. D. Whiteside (Aberdeen): Dr. Wright's instructive paper has not left much for discussion, but I wish to take exception to his statement that functional kidney tests in his opinion have no value as an indication when a patient is operable. We like to have a patient who is to undergo a prostatectomy that has a nice clean tongue, whose abdomen is not distended, and who has a good appetite. Most of us who do not do quite as many prostatectomies as Dr. Wright are not good judges of the physical condition of patients, but most of us think and believe that functional kidney tests are of considerable value, and it really does not matter to the function of the kidney itself whether you have 20 or 50 per cent of excretion of phenolsulphonephthalein or 20 or 40 grams of urea. If that is constant, if you have 40 or 50 which remains constant on repeated examinations, I think that in itself is about the best indication of when a patient is suitable for prostatectomy. Long ago it was thought that the worst prostate case was the one in which uremia was likely to occur, and the poorer the kidney function the more imperative was the need of immediate prostatectomy. The closer the patient is to uremia, the longer he must go before he can have a prostatectomy.

Dr. Wright sums up the whole matter in a few words that in prostatectomy work in the last twenty years the treatment of post-operative uremia is prophylactic.

Dr. Eric P. Quain, (Bismarck, N. D.): I appreciate very much the privilege of listening to Dr. Wright's paper and the discussion on the subject. We gather from our studies of the subject that there is probably no field in surgery where the road is scattered with more pitfalls and dangers than in this line of work. It has more little details and more little finerics about it than any other subject I know of, and one has to pay attention to the patient's condition, and not the least to the operative technic if one is to be successful.

One of the most important things which contributes toward success is the method of anesthesia that is used.

It is a method by means of which one can anesthetize without general anesthesia the base of the bladder, injecting the local anesthetic into the sacral canal, extradurally, putting in 20 to 30 c.c. of novocain into the sacral canal, waiting for half an hour, and the bottom of the pelvis is usually almost anesthetic so that one can proceed with the work after he once gets into the bladder. To get into the bladder one-half per cent novocain can be used, so that the anterior abdominal wall can be drawn through. If the patient has not enough local anesthesia so that the work can be done properly, a few drops of ether or of ethyl chlorid, 40 or 50 c.c., can be given and the work can be completed. It is one of the many details that one should be familiar with and if carried out one is more likely to be successful in the bad cases where he cannot use general anesthesia and do more straight forward surgery.

Dr. Moore: I would like to ask Dr. Wright if he has abandoned perineal prostatectomy?

Dr. Wright: Regarding functional test of the kidneys, will say that I have successfully operated on a man who did not pass any phenolsulphonephthalein solution with his urine. We tried repeatedly, but were never able to find even a trace of it in the urine. We operated on him just the same. What difference does it make? He excreted the amount of urine necessary to carry him through life. His blood showed no accumulation of waste products. We emptied his bladder and proved that his kidneys continued to functionate with his pelvis empty.

Some of the kidneys, whose pelves have long been dilated by back pressure of urine, will not continue to functionate if we remove this back pressure too rapidly. I make it a practice never to operate on a man without proving that he will go with an empty bladder without becoming uremic. If the patient's general health has broken down I catheterize him long enough to prove that his kidneys will continue secreting urine with an empty pelvis, then, frequently, I make suprapubic drainage. After making a suprapubic drainage we make it the rule not to do the second stage of removing the prostate, as long as he is gaining in strength and weight.

As far as anesthesia is concerned: I have lost but one patient by use of general anesthetics. This man was eighty-seven years old and died of pneumonia following the administration of gas. I give all my surgical patients "Twilight Sleep." Eighty per cent of them do not remember having been near the operating room. It is a standing order in the hospital that my patients are to be given a No. 1, H. M. C. tablet two hours before they are scheduled to go to the operating room. If, after one hour, they are not distinctly drowsy, they are given a No. 2, or half strength tablet. H. M. C. tablets, as you know, are one-quarter grain morphine, one-one-hundredth hyoscine and one-sixty-fourth cactine. It is important that the tablets be given one and one-half to two hours before the time of operation, because we do not get the complete hypnotic effect of these drugs in a shorter time. Also, because we rob them of the last two hours of anxious waiting for the stretcher to come for them, which must be quite interesting to intelligent people.

So far as perineal operation is concerned, I will say that I never do it. One genito-urinary man, Dr. Young, of Baltimore, and some of his disciples have recently been putting some of their ideas on paper regarding this operation. They give the perineal operation credit for the lessening mortality caused by an increased skill in operating and better knowledge of the preparation of the patient. I believe the results of other men who operate by the suprapubic method are as good.

The best criticism I ever heard of a perineal prostatectomy was given off-hand by Professor Zukerkandl in his clinic in Vienna. He was asked by an American student if he were familiar with Professor Young's operation, why he did not perform it. He replied, "I am familiar with it but do not use it because any operation which must be done according to certain definite rules which do not permit a variation is not the method of choice."

THE MECHANISM OF REFERRED PAIN FROM AFFECTIONS OF THE THORACIC VISCERA*

By Floyd O. Woodward, M.D.
JAMESTOWN, NORTH DAKOTA

Frequent reference is found in current medical literature to the referred abdominal pain of lobar pneumonia, and the surgeon is ever on guard to avoid opening the abdomen of a patient with pneumonia under the mistaken diagnosis of acute surgical abdomen. However, but little has been written upon the referred pains of subacute and chronic affections of the thoracic viscera, and it is to this phase in particular that I wish to call your attention by this brief summarization of my experience, elaborated by reference to the reliable data bearing upon this subject, chiefly by Joseph Capps, Griffith, Herrick, and Luschka.

The nerves supplying the skin and skeletal muscles have become so educated by countless experiences that any stimulation of them is accurately localized upon the surface of the body as at the point of stimulation. This is, however, not the case with the nerves supplying the internal organs. A painful irritation of the visceral nerve endings finds expression, not necessarily in or over the site of the organ, but in a painful area upon the surface, often remote from the area affected.

A careful experimental study by Capps upon human subjects has enabled him to deduce several fundamental laws with regard to sensory nerve distribution in the thorax, namely:

1. The visceral pleura is not endowed with pain sense.
2. The parietal pleura is richly supplied with sensory nerve fibers from the intercostal nerves and irritation of this pleura induces pain that is accurately localized by the individual over the spot that is touched. Moreover, if the irritation is increased in intensity it gives rise to a referred pain at some distant point on the surface of the body. The more intense the irritation, the more diffuse the referred pain.
3. The diaphragmatic pleura derives its sensory supply from two sources: (a) the phrenic nerve and (b) the last six intercostals.

(a) The central portion of the diaphragmatic pleura is innervated entirely by the phrenic nerve.

(b) The peripheral rim of the diaphragmatic pleura, which is two or three inches wide, is innervated by the sensory fibers of the intercostals.

(c) That portion of the pleura adjacent to the pericardial sac receives its sensory innervation chiefly, if not exclusively, from the phrenic nerve.

Reasoning from these principles we find that a referred pain from involvement of the pleura, practically speaking, comes from irritation of the diaphragmatic portion only, as:

1. The visceral pleura has no sensory fibers.
2. The parietal pleura, except for the diaphragmatic and pericardial portions, is supplied with nerve fibers from trunks that are essentially superficial and therefore irritation of them gives rise to localized pain unless the irritation is extreme, when it may be both referred and localized.

It is, therefore, almost, if not quite, exclusively involvement of the basal portions of lungs and pleura that will bring about the distant localization of pain which can make a confusing clinical picture, most especially when the area of reference is in the abdomen.

On account of the fact that the phrenic nerve innervates the central portions of the diaphragmatic pleura and the pericardial pleura, pain arising in this area is almost constantly referred to the neck and shoulder on the same side, due to the fact that the afferent impulse travels up the phrenic to the cervical cord and excites efferent impulses in the skin supplied by the 2d, 3d, and 4th spinal nerves, that is, the area over the ridge of the trapezius muscle and region of acromial process.

The phrenic nerve is chiefly made up of fibers from the 4th cervical segment with a few fibers from the 2d and 3rd, which explains the peculiar area of reference of pain induced by irritation at the lower distribution of this nerve.

The pain induced by irritation of the pericardium itself is of exactly the same character and referred to the same shoulder areas, because it also is innervated by the phrenic.

Now, confining the consideration of referred pain entirely to the abdominal manifestations, we find that abdominal pain referred from the diaphragm may be localized at various points over the abdominal organs. Curiously enough, however, the maximum abdominal pain and tenderness is far more frequently on the right side than on the left. The areas are usually limited in extent and may be so close to the key points of abdominal disease as to closely simulate trouble below the diaphragm, especially in the gall-bladder, appendiceal, and kidney regions.

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Now a few words as to the character and extent of such referred abdominal pain in affections of the diaphragmatic pleura. It is usually distributed in segmental areas in the epigastrium, sometimes extending down over the whole abdomen on the same side as the pathology and often spreading as low as the distribution of the 12th thoracic nerve, or well down into the inguinal region.

When the posterior portion of the diaphragm is irritated the pain is most marked in the lumbar region instead of in the abdomen.

The referred pain is both spontaneous and associated with hyperesthesia and hyperalgesia of the skin and superficial tissues, on pressure; the extent of the area is determined by the degree of irritation—the more intense the trauma applied to the pleura, the greater the tendency to spread down over the lower abdomen. Rarely the pain is bilateral, extending over both sides of the abdomen.

These few facts, when applied clinically, will often afford an explanation of many puzzling pains in the back, neck, and abdomen, the cause of which will be cleared up when the physical findings are considered in their proper relation to the subjective signs.

As a means of distinguishing between abdominal referred pain and inflammation of the abdominal viscera, I have selected the following data from the authors referred to above:

1. The evidence of a respiratory tract infection, such as cough, often slight, herpes on lips, rapid respiration and high temperature, is usually present in the referred pain of acute thoracic disease.

2. The presence of sharp, definitely localized pain in the neck or trapezius region on the same side as the abdominal pain, due to involvement of the phrenic nerve at its distribution in the pleura, should at once arouse suspicion in a questionable case.

3. The pain is usually aggravated by cough and deep inspiration in pleuritic affections.

4. Nausea and vomiting are much more common in visceral abdominal pain than in the referred pains, although both may produce this condition.

5. The skin and muscles of the abdomen are more sensitive to touch in referred pain of thoracic origin than in abdominal disease. This sign is best elicited by pinching the abdominal wall or scratching the skin.

6. Deep pressure with the flat hand over the suspected area is well borne in referred pain while it elicits a dull deep pain when applied over an inflamed abdominal viscus.

7. And, most important, a searching examination of the chest walls with the stethoscope, listening particularly for the fine, dry, crackling râles and friction rubs at the extreme bases of the lungs, just at the diaphragmatic margin, will almost invariably reveal a basal pleurisy when present.

On account of limited time I cannot read case reports, but I do wish to emphasize the fact that both gall-bladder disease and ulcer of the stomach and duodenum are quite frequently diagnosed when the real affection is above the diaphragm. Among other mistaken diagnoses, Capps cites nine cases of supposed appendicitis that proved to be basal pleuritis. Two were operated on and found normal. Two cases diagnosed as liver abscess, one of which proved normal at operation, and the other of which recovered when treated for the thoracic affection which he really had. Cholecystitis, peritonitis, renal calculus, lumbago, and brachial neuritis are all included among the errors of diagnosis due to referred pain in these respective areas in cases proven to have involvement of the thoracic viscera only.

DISCUSSION

Dr. Paul H. Rowe (Minneapolis, Minn.): I have enjoyed Dr. Woodward's paper very much, and I believe the essayist has called our attention to a very important subject in differential diagnosis. It is well recognized that pneumonia is no field for exploratory laparotomy, but confusion between the early stages of pneumonia and acute appendicitis, especially in children, is not so uncommon as might be expected. The reason for this confusion is that, often during the first twenty-four hours of pneumonia, pulmonary signs and symptoms may be absent. Pneumonia, by irritating the tenth, eleventh, and twelfth intercostal nerves, may produce pain, tenderness, and rigidity in the abdomen, which, with the fever, leukocytosis, and vomiting of pneumonia closely simulates acute appendicitis. In pneumonia the pain and tenderness are located higher in the abdomen, and the rigidity is less marked, as a rule.

Post-operative pneumonia should be lobular, not lobar. It has been pointed out by Hoover that simple bronchitis may cause referred pain in the abdomen by inflammation of the pleura without intermediate changes in the adjacent alveoli. He believes that many of the chest pains complained of by patients with bronchitis can be explained on this basis. While theoretically the differentiation of inflammatory diseases of the pleura from those of the abdomen, notably the gall-bladder affairs and appendicitis, may be easy, clinically it may be very difficult. The important thing is to think of the possibility of a lesion above the diaphragm. Careful physical examination of the chest not limited to the anterior aspect will prevent many errors in diagnosis. Diseases of the esophagus may cause referred pain in the abdomen or neck. Extensive ulceration, especially in the lower third of the esophagus, may refer pain to the epigastrium. I recently had a woman with cardiospasm under observation who complained bitterly of pain in the neck at the time of the attacks of spasm of the cardia. Dr. Woodward has stated that some of these cases are diagnosed peptic ulcer. This can be avoided if all patients giving a history suggestive of ulcer are given a therapeutic test-out of their distress with food, alkalis, and aspirations of the stomach. Distress from an uncomplicated ulcer is associated with free hydrochloric acid and will be regularly relieved by these measures. If we rely upon the patient's history alone we shall often be led astray. Many patients do not observe their symptoms closely enough for us to make a diagnosis of ulcer on the history alone. While the history is probably the most important thing in the diagnosis of ulcer, if these patients are given a therapeutic test-out of their distress, ulcer can be differentiated from disease of the thorax or of the abdominal viscera.

RECENT DEVELOPMENTS IN RADIOTHERAPY*

By R. F. Bellaire, M.D.

SIOUX CITY, IOWA

In considering the field of radiotherapy we shall confine our discussion to the problems and treatment of cancer.

The number of deaths from cancer in the United States in the year 1921 was, approximately, one hundred thousand. These figures show an alarming increase and call to our attention the menacing problem which we, as physicians, must combat with all the agents at our disposal.

That our profession is held liable for many cancer deaths because of failure to diagnose and treat the disease early, is a frequent accusation, but kindly permit me to offer a most emphatic rebuttal, because, where we find one case of professional delinquency, we have a score of patients who do not see a physician until the disease is no longer a local process.

In the last analysis the situation is merely this: A patient ignorant of the early manifestations will nearly always wait too long, unless pain is a predominating symptom. On the other hand, a more intelligent patient often suspects the presence of early cancer, but delays indefinitely, fearing that a professional consultation will corroborate the suspicions. This fact is true most often in breast cancer.

Recent articles in popular magazines have accomplished incalculable good along the lines of educational propaganda and will be the means of reducing materially delays in diagnosis and treatment. Summing up, we find that professional delinquency, ignorance of the layman to early cancer manifestations, and cancer fear or phobia make up the tripod upon which rests the present mortality rate.

As to treatment, we must choose between surgery, *x*-ray, radium, and cautery. First in importance is surgery, and it should take precedence over all other forms of treatment unless the case be inoperable; then surgery is secondary to *x*-ray or radium. The status of the surgeon is fixed because he can remove only tissues which lie within the confines of the scalpel; these he removes en masse, and in this lies the advantage over irradiation. But how often is he limited by vital structures, and how frequently does he find that the lymphatics have carried cancer cells beyond the reach of the knife?

The investigations of Hanley show that lymphatics arising in the tissues are not all intercepted in the nearest group of glands; the first set may be not invaded, and the cancer cells invade glands of a more distant group. It cannot be said of any malignant growth, however early it may be, that it has not produced metastasis in the neighboring or more distant glands. We have no means to determine in any case the limitations of metastases or the extent of the invasion into the lymphatic vessels. For this reason cancer cases should be radiated before and after operation to cover these various sites of distribution.

The treatment of cancer with surgery alone is as unjust to the patient as is the treatment with irradiation alone unless the case be inoperable.

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This fact is so important that it would be axiomatic to claim that good surgery and no radiation is far better than good surgery and inefficient radiation. Surgery has reached the limit of technical skill and procedure, hence any decrease in the cancer mortality, aside from educational reduction, obviously must come from *x*-rays or radium unless a new agent be discovered.

Deep therapy with *x*-rays is, at the present moment, in a very vital period of transition. In the past year we have seen an increase in voltage from 100,000 to 280,000, which, with changes in other factors, has revolutionized the technic and enhanced amazingly our results. Whether a still higher voltage or an intermediate point will finally be selected as the ideal will be determined within the present year.

Every radiologist who is fair with himself must admit, though reluctantly, that up to the present time treatment of deep-seated cancers in the pelvis, abdomen, and chest, has been disappointing. True we have apparent and striking cures in our records, but these are so much in the minority as to be conspicuous. Our work has not been in vain because out of it all there has evolved an advance which will prove epochal if recent reports are checked with confirmatory evidence.

Before taking up recent developments we shall consider the near-recent principles and analyze, briefly, the causes for our failures. It is obvious that lethal doses must be applied if we hope to devitalize cancer cells. This accomplishment has been a simple procedure in superficial lesions, but, when malignant cells were more than two centimeters below the surface, the absorption of the rays in the first one or two centimeters left but few to act below, and these were so ineffective as to be actually harmful because of their stimulating qualities.

To kill deep-seated growths it is absolutely essential to introduce into the deep structures a 100 per cent dose for carcinoma, with the same or but little greater dose on the surface. In other words, the ratio between the skin and depth dose must be about equal. In some forms of sarcoma the ratio may be as low as 60 or 80 per cent of the total skin dose.

For the production of deep lethal doses tremendously high voltages must be utilized. Of all the factors concerned high voltage is the most indispensable because voltage determines the force with which the rays are projected into the tissues. The higher the voltage the shorter the wave length; the shorter the wave length the greater the velocity of the rays. If, therefore, we can generate sufficient voltage for the introduction into the deep parts of lethal doses without destroying the overlying skin, we shall have advanced tremendously toward the solution of the cancer problem. Furthermore, it is only with high voltage that rays of homogeneous character are produced. Homogeneous rays are both qualitative and quantitative. *X*-rays that are homogeneous in quality are those whose components do not change in penetrating deeper parts; they are homogeneous in quantity when their absorption is of the same amount in the different depths of the tissues.

Increased filtration is another factor by means of which the proportion of depth to the skin dose is increased, since only rays pass through which affect the skin least. In the past, four to six millimeters of aluminum were in general use for all deep work; now ten millimeters of the same metal or, better, its equivalent in copper is utilized.

Now, as regards the distance of the tube from the body surface. Until the past few months the standard distance was eight inches. At the present time radiologists who are following the newer technic have chosen twenty inches as the most effective distance, as worked out by Dessauer. This increase allows of longer exposures, thereby increasing the depth to the skin dose. It also allows of homogeneous radiation, which is not possible at close range, and, finally, a much greater skin surface can be exposed, thus introducing more rays into the growth and into the field immediately surrounding. It has been calculated that larger ports of entry increase the intensity about 25 per cent because of scattered radiation.

RECAPITULATION

The recent developments in röntgentherapy have revolved about changes in the following factors:

1. Increasing voltage from one to two hundred thousand.
2. Increasing filtration from six to ten millimeters of aluminum or its equivalent in copper.
3. Increasing target distance from eight to twenty inches.
4. Increasing size of skin ports from four to twelve-plus inches.

Quoting Case, in a recent article, he has the following to say in regard to the therapeutic results with the heavy voltage:

> Some of the immediate results have been startlingly encouraging. Following a single irradiation, ulcerating

recurrent breast cancers have healed over and nodules have disappeared. Lameness from metastatic involvement of the pelvic bones has subsided so that some bedridden patients have become able to walk again. In several cases, distressing urinary symptoms attending cancer of the pelvic organs, not only uterine cancer, but also prostatic, rectal, and bladder malignancies are showing abatement. A prostatic case is regaining appetite, weight, and strength; and his urinary retention is lessening. An enormous uterine sarcoma has reduced one-half within a month. Several fixed uterine carcinomas have become movable, showing marked retrogression of the disease. A vesico-vaginal fistula of cancerous origin has closed. The writer does not wish to be misunderstood; a few similar results have broken the monotony of nearly constant failure in handling inoperable cancers with less penetrating rays during the last decade. although the palliation has been definite; but that such prompt response as followed our recent therapeutic efforts gives new ground for hope of far greater success cannot be denied.

DISCUSSION

Dr. N. J. Nessa (Sioux Falls): I wish to compliment Dr. Bellaire on his paper and the treatment of this subject, which he has so well covered. I do not know that there is anything I can add which would improve it; however, I might say a few words with reference to certain points which the doctor mentioned.

He made a statement in regard to pre-operative raying, which I believe all of us should accept, and thereby do a great deal more for our patients if we will remember it. Those of us who are doing radiotherapy have post-operative cases sent to us for deep *x*-ray therapy, and it is quite invariably the rule to find that they have had no radiation prior to operation, so then the question comes up: Is there any virtue in radiation? In other words, if radiation is of value post-operatively, why should not the same rule apply pre-operatively. We all know that there is more or less danger by surgery in transplanting or grafting malignant tissue mechanically by the scalpel or by opening up an avenue of circulation. We also know that radiation produces a stoppage of lymphatics, and, if such is the case, why from that standpoint alone is it not well to produce this mechanical obstruction to the possible spreading of this disease, as well as destroy malignant cells which can be properly reached by radiation.

X-ray therapy itself is based upon two fundamental laws which are known and accepted,—that is, all tissue cells, when allowed to absorb a certain amount of radiant energy, are destroyed; secondly, that the amount of radiation which is necessary to produce this change in the cells is variable according to the type of cell which is irradiated. In other words, all cells fall into two general classes: they are normal cells or they are pathologic cells, and, so far as we know, all pathologic cells have a lower resistance for radiation than have the normal cells, unless it be carcinoma.

If this be true, it would seem that we would have a positive remedy for malignancy. We know that malignant cells clear up readily in superficial lesions,—epitheliomas, etc., when radiated sufficiently, but when the deeper structures are involved it becomes more difficult, due to the fact that a great deal of this radiation has been absorbed by the superficial tissues before it reaches the deeper cells; consequently the newer technic which the doctor has mentioned, such as increased voltages, focal distance, and filter, will deliver more homogeneous raying to the deep underlying malignant cells.

Regarding stimulation, Dr. Schmidt has stated that radiation to the extent of 60 per cent of an erythematous dose is to be considered in the nature of a stimulant. This should impress anyone doing radiotherapy with the fact that, if one does not know fully what is being done or if one is not prepared by equipment to deliver full dosage, a growth may be stimulated and made worse rapidly, and thus bring disrepute upon this form of treatment. With the newer technic, we hope to obviate this by the fact that we obtain more radiation or near erythema dose to the underlying cells. If we can deliver 100 per cent of an erythema dose to the malignant cells, superficial or deep, we have reason to believe at the present time that such cells will entirely disappear. In other words, the action is citoplastic, and the residue is carried away by body fluids. If a large amount of destruction is brought about, the body fluids will not take care of it, as in its stead we get destruction, necrosis, and sloughing.

The aim we try to carry out is to stay within range of the so-called erythema dose in the superficial structure, and destroy the pathological cells, the broken-down product to be carried away by the circulation. The biological changes that are produced within the tissue cells, so far as we know, are the same, whether produced by *x*-ray or radium, so long as absorbed by cells. The advantage of the newer apparatus in delivering 200 to 300 thousand volts is to get deeper penetration by shorter wave length, and thereby reach areas we were unable to reach with the softer ray without destruction of the superficial tissues.

One physicist has recently stated that the *x*-rays which are given off by these new high power units measure less than one-tenth of an Engstrom unit, which is accepted as the unit measure for Gamma rays, such as are obtained from radium. If this be true, it would seem that *x*-ray with the very short wave length, such as can be produced by the new powerful units, will become the highly logical form of radiation to use wherever it is indicated.

Dr. R. F. Bellaire (closing): I should like to add that until recently our results with deep *x*-ray therapy were often disappointing; however, since the introduction of the iontoquantimeter, we can determine accurately the dose administered to any depth of tissue. This instrument has taught us that doses we formerly believed efficient were in reality far from lethal for cancer cells. Lack of voltage was the primary cause.

One recent important development is the use of electrothermic coagulation in the treatment of cancer of the mouth, tongue, pharynx, and larynx. In all these conditions *x*-rays are useless. These lesions are made accessible to the coagulation method, and the procedure is carried out at one operation. In the technic a large indifferent electrode is placed between the scapulæ, and the active electrode is controlled by the hand over the site of the lesion. The high-frequency energy from the large electrode is concentrated at the smaller terminal with the production of a terrific heat; the result is immediate destruction, which penetrates to a depth far deeper than with other cautery methods. It is surprising how little pain follows this apparently severe treatment. The entire necrotic area sloughs in seven to fourteen days, depending on the size. Scar tissue fills in the area.

I have brought this treatment to your attention because of its high merit and because its use by the profession has not yet generally been adopted.

LIMITS OF LOCAL AND REGIONAL ANESTHESIA*

By Richard R. Cranmer, M.D.
MINNEAPOLIS

The title of this paper might indicate that, in the opinion of the writer, there must be many limits to local and regional anesthesia, but the purpose of the paper is to cite the many advantages it has over general anesthesia, in addition to mentioning its limitations.

The consensus of opinion in the medical profession is still in favor of the extensive use of local anesthesia in major surgery, but there are conditions in which it is not the method of choice. While in the hands of an expert there are few conditions in which it cannot be used, in the hands of the average operator there are certain conditions in which it cannot be considered the best method.

The use of local and regional anesthesia has been increasing markedly since the discovery of a practically non-toxic anesthetic and since the work of Crile in Cleveland has demonstrated beyond all room for doubt that that great surgical bugbear, shock, can be reduced to a minimum by its use. Cases which before were considered poor surgical risks, and many which were considered inoperable, are now operated on with comparative safety under local anesthesia.

It is, first, in this class of patients, namely, cases with low basal metabolisms and those with approaching acidosis as proven by the Van Slyke and other tests; and, secondly, in that class of cases possessing contra-indications to the use of a general anesthetic, for example, Bright's disease, bronchitis, pneumonia, etc., that local anesthesia has proven, and is proving, of special value. Not alone, however, in these classes of cases is its use indicated.

Professor Braun of Germany was perhaps the first man to enter into the use of local anesthesia extensively, and it was he who, through years of toil, developed most of the technic as it exists today.

Crile, of Cleveland, is perhaps the foremost user and advocate of local anesthesia in America today, but he has combined its use with an analgesic stage of nitrous oxide.

In his work on anoci-association he proved that nerves blocked by local anesthesia are incapable of transmitting shock-producing impulses to the brain, and he also proved that where a general anesthetic is used these shock-producing impulses are transmitted and produce the same destructive effects upon the neurons in the cerebral cortex as does continued starvation or continued fright. This he proved by microscopic examination of the brain of animals dying under these three different circumstances.

The reason of his use of the analgesic stage of nitrous oxide is to prevent the psychic shock the patient experiences when he realizes he is being operated on. Crile reported in the *Journal of the American Medical Association,* last October, a series of several hundred major operations, including thyroidectomies for exophthalmic goiters and resection of the stomach and bowel at various sites, with a mortality of 1.5 per cent. Considering that the mortality following thyroidectomies for exophthalmic goiters in the hands of the average operator under general anesthesia runs as high as 15 per cent, this report bears considerable weight. Cocaine, while possessing, undoubtedly, the greatest anesthetic power, unfortunately is extremely toxic to most individuals, and, therefore, has been replaced by non-toxic agents, such as novocaine, alypine, holocaine, apothesine, etc.

Novocaine has proven ideal in the writer's use of it. The only disadvantage of it as an anesthetic is its short duration, which, however, can be rectified by adding small doses of adrenalin, causing the anesthesia to become more pronounced and of longer duration without adding to the toxicity of the drug.

The forms of local and regional anesthesia in common use are the following:

1. Infiltration anesthesia.

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*Presented before the Central Minnesota Medical Association at Litchfield, June 13, 1922.

2. Nerve-block anesthesia, for example, blocking iliohypogastric and ilio-inguinal nerves in hernia operations and blocking the intercostals in rib resections. This is usually used in conjunction with infiltration anesthesia.

3. Brachial anesthesia can be used in all operations on the upper extremities, for example, amputations, joint resections, and setting of fractures. For the above conditions, there is no more satisfactory anesthetic if one is successful in reaching the plexus. Its use is only limited by the operator's inability correctly to place the anesthetic. This occurs about once in four or five attempts.

In making the injection for brachial anesthesia the pulsation of the subclavian artery is first sought above and about the middle of the clavicle. The first rib is then located by palpation. The needle is introduced just above the subclavian artery downward, inward, and slightly backward in the direction of the first rib. There is no danger of puncturing the pleura, or of going too deep, as the needle can go no further than the first rib.

The nerve trunks are encountered as they pass over the first rib, and the injection of 10 c.c. to 20 c.c. of a one per cent novocaine solution is made when the patient feels a tingling or stinging sensation in the fingers or forearm.

If the anesthetic is properly placed, the entire arm is rendered insensitive to pain, it then being possible to do any operation whatever on that member, even to an amputation.

4. Spinal anesthesia is used in pelvic operations on women, also in perineal repair and vaginal hysterectomies, and in prostatectomines in men.

While in Vienna, in 1914, I witnessed in Wertheim's clinic the Wertheim operation for cancer of the uterus done under spinal anesthesia, and was told it was the anesthetic of choice for that operation. When using the spinal anesthetic the hips should never be elevated, as gravity may carry the anesthetic to a dangerous level in the spinal cord. Spinal anesthesia is limited to operations about the pelvis and below. The writer has used it in four vaginal hysterectomies without any untoward effects. In syphilis of the nervous system and in cases of chronic headache spinal anesthesia is better omitted, for subsequent trouble will likely be ascribed to the method. In convulsive diseases there is danger of untoward results.

5. Parasacral anesthesia is especially useful in resections of the lower bowel where no laparotomy is done in connection with it.

In making the injection for parasacral anesthesia the hollow of the sacrum is filled with the novocaine-adrenalin solution, which cuts off the sympathetic nerves from communication with the sacral plexus. It is not necessary that the needle find the several holes in the bone, but it is quite sufficient that the tip of the syringe should be in contact with it. As there is danger of puncturing the rectum if the needle is inserted at the end of the coccyx, the injection should be made at the side of the coccyx, using a long needle.

6. Caudal anesthesia is especially useful in work upon the cervix, vagina, and perineum. It has also been used in obstetrics, but has not proven to be the anesthetic of choice for that work.

7. Splanchnic anesthesia, which is a comparatively new development, is useful in operations within the abdomen when the usual infiltration anesthesia is used for opening the abdomen. All abdominal organs having a nerve supply from the solar plexus can be rendered insensitive by infiltrating that plexus either from behind before opening the abdomen or from in front after the abdomen is opened.

It is the writer's opinion that the anterior method is better, it being possible more accurately to place the anesthetic, and, therefore, there is less danger of puncturing large blood vessels. For instance, in a cholecystectomy the splanchnic injection can be made along the cystic duct and the attachment of the gall-bladder to the liver, it not being necessary to render the whole of the sympathetic plexus anesthetic, as it done when the posterior method is used. A description of the posterior method as described by Pauchet, the French surgeon, who first reported results with it, is as follows:

Remembering that the splanchnic nerves are retroperitoneal and go through the diaphragm close to bodies of the vertebræ, the patient is placed on one side with his back bent forward. At the level of the twelfth vertebra, three inches from the median line, a needle is introduced at an angle of 45.° This will strike the side of the vertebra at the depth of from two and one-half to four inches, according to the size of the patient. The needle is then drawn out slightly and made to slip forward on the vertebra for about one-half inch. It is then aspirated to make sure that the point has not entered any cavity or blood vessel, and then from 25 to 35 c.c. of one per cent novocaine are injected. This is repeated on the opposite side of the spinal column.

The anterior method is simply injecting subperitoneally about 70 c.c. of one-half per cent novocaine on the anterior surface of the 12th dorsal vertebra after the abdomen is opened.

In addition to the contra-indications and limits of local anesthesia mentioned above, we have the following:

1. Acute inflammatory areas cannot well be anesthetized by the infiltration method.

2. Following large hemorrhages, the toxicity of novocaine, or any other local anesthetic, is increased and they should be used in small amounts or in a weak solution with large doses of adrenalin.

3. In individuals with low blood-pressure or where shock is imminent, paravertebral and spinal anesthesia are dangerous because of their lowering effect upon blood-pressure.

4. In acute abdominal conditions where pus is present a light narcosis should accompany the local before packing off the rest of the abdominal cavity, as inserting and removing the packs usually cause considerable distress.

5. In conditions of the abdomen where there are many old extensive adhesions to be separated, local anesthesia should be supplemented.

6. In extremely neurotic women local anesthesia frequently fails, even though a large dose of scopolamin and morphine has been given previously.

7. In very small children, where a hypodermic injection of a narcotic is contra-indicated, local anesthesia for major work is not usually successful.

8. Breast amputations are best not done under local anesthesia unless there are contra-indications to a general anesthetic because of the extensiveness of the injections necessary. In this operation it is necessary to make a brachial injection, several intercostal injections, and then infiltrate completely around the area to be excised.

9. Spinal anesthesia should be confined to operations in connection with the lower segments of the spine and should never be used for operations at higher levels.

10. Braun says local anesthesia is somewhat limited by the slight toxicity of all the drugs used for that purpose.

11. In operations of the skull and the brain, the best results are obtained by the combination of local anesthesia and a mild narcosis.

12. In very long operations, the effect is liable to wear off before the completion of the operation and should then be supplemented with a general anesthetic.

13. Among the dangers of local anesthesia may be cited intravenous injection, in which shock symptoms can appear with surprising promptness. It is best, therefore, always to aspirate before injecting, and if blood appears the point of the needle should be moved. Injection into a phrenic or pneumogastric nerve is not as dangerous as was formerly thought. It has been proven experimentally on animals that one phrenic or pneumogastric nerve may even be severed without serious results.

14. We are limited in the use of local anesthesia by the patient's lack of confidence in anything but the old general anesthesia, under which the patient knows there will be no pain. Indeed, in private practice, it is frequently impossible to get the consent of the patient to the use of local anesthesia. But in city, county and state institutions where that consent is not particularly sought, patients who have been operated on under both, usually say they prefer the local.

15. Then, again, we are very much limited in our use of a local anesthetic by lack of proper equipment, generally speaking, and by our lack of experience in this line and by our lack of knowledge of the exact location of nerves and where they are most readily accessible.

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THE POSSIBLE FUTURE OF LYMANHURST AND ITS INFLUENCE UPON THE HEALTH OF FUTURE GENERATIONS*

By Arthur E. Benjamin, M.D.
President Hennepin County Medical Society
MINNEAPOLIS

When the ground upon which this building stands was given to Minneapolis by Mr. Lyman for a children's hospital, I was on the board of Charities and Corrections; but I was not very enthusiastic, at the time, over the prospect of having Lymanhurst a special unit of the City Hospital for the treatment of children's diseases, as it required special management, a separate heating plant, and would be more expensive to maintain than if this department were on the same ground as the main hospital. Things shaped themselves, however, in time so that the branch became a school and hospital for the care of tuberculous children of school age. Here these children can be treated and instructed in hygiene, under careful medical supervision with teachers and nurses in attendance. Good food and proper clothing are provided, and the requisite amount of rest and recreation is insured. These children are not denied mental training while they are being treated for tuberculous disease, as is often the case elsewhere. There is no question in my mind about the wisdom of this venture.

Next to surgical work, I have always been interested most keenly in preventive medicine, especially as it applies to children. Many of us who have been in the practice of medicine for a number of years, can recall children suffering with tuberculous disease, who, unquestionably, could have been cured had we at that time a Lymanhurst to which we could have sent them to be treated; and still others who were denied schooling on account of the affliction, or who dropped behind because of the unrecognized tuberculous handicap.

It has seemed to me that the medical profession, for several centuries, has been working in the wrong decade of life, to attack this disease. They generally began their attack when the diseased organs were beyond repair or with only the possibility of a short prolongation of life. In other words, the treatment of this disease began only when the diagnosis was clinically positive and the chance of cure was uncertain.

To attack the foci of disease early, before there is dissemination throughout the body and before the tissues are "shot to pieces," as it were, makes victory more certain and requires less expenditure of energy, time, and money for the reconstruction period.

What a long drawn-out battle for health by the patient! What an expenditure of energy! What inconsistency in not using every effort to recognize the affliction in the incipient stage! What a heroic but silent conflict have many of these human bodies fought, at the same time carrying on the duties of a husband or a mother, and what a sad ending when, after this long conflict, the mother succumbs and her small children are left to go through the same experiences as the parent!

It is what you do here in Lymanhurst and can show to the community, to the rest of Minnesota and other states, that will wake the physicians and the laity up to the dangers of a case of tuberculosis, unhealed and uncared for, in a child. You are showing and are demonstrating the need of this early treatment and its benefit to future generations.

The good that you do here will live after you, for it is not the child alone that you treat, but the people that the child comes into contact with, that are saved, and even perhaps the offspring of this individual will not fall a prey to the disease because of your work.

It is an endless chain, the links of which are so often broken and weaken the whole social and economic band of the community. The chain has to be repaired very often, and many a link that replaces a discarded one is found incapable of standing the strain or unable to carry on the work because of certain unfitness. Our whole progress is thus subjected to many interruptions that may well be avoided should we here and now begin at the bottom of things, and try to eliminate this one great scourge of the human race.

It has always seemed to me strange that a community or a country, having such indisputable evidence before it that tuberculosis is a preventable disease, does not go about it to rid itself of the scourge.

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*Read by invitation before the Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, March 14, 1922.

The saying that "familiarity breeds contempt" has been exemplified in our attitude toward tuberculosis for generations. We must look for a Grant or a Foch "to fight it out on this line" that we do now know it must be fought out on, if we are to demonstrate to our children and our children's children that we had regard for their welfare and for the future safety of the human race.

I am not belittling the effect of other diseases, but this is a disease we can talk about indoors and out, in church and out, in season and out, before men, women, and children, our friends and sweethearts. Unless we soon do more than we are doing in the light of our present knowledge of the disease, we shall have to leave some apology to the now unborn for our neglect.

When our country recognizes the menace of an enemy and raises billions for war to fight this enemy on a foreign shore, we should appreciate the danger of a more destructive foe within our midst and raise funds and employ volunteers to attack this scourge before we are weakened and devoured.

A renewed campaign here and now must be started with fresh volunteers and new equipment. A steady, relentless, energetic, persistent, never-ending drive to overcome the lethargy of the public; an educational bombardment with facts and figures, a push and center rush, an enlistment of the whole profession, with a wholehearted endeavor, with a will to win, a ceaseless and continuous raid on the coffers of private individuals and the treasury of the government, are in order that victory may be gained.

No one should escape the engulfing avalanche of public opinion, in order that future generations will not pay the price of neglect. Your child and mine or their children, unquestionably, will be the benefactors if we do this, or will be the losers if we do not. We can and must! It is of more importance than the bonus bill or anything else now before us. The Government today would not be spending the millions that it is, had we properly laid hold of this matter twenty years ago.

The eyes of the public and the profession are watching the Lymanhurst experiment. It is a pioneer work that you are doing. Your results up to date in this short period, justify the faith that we expressed when the building, with its equipment, was turned over to the staff of medical men and teachers.

Your new demands are being granted where possible, and who will not prophesy that, as the months extend into years, many new features will be added to the experiment, with new buildings added and equipment supplied. A never-ending expression in the earnest, conscientious endeavor to convince the community, the State and the Nation that tuberculosis must be recognized in the incipient stage in children so that inspection will be carried on, not only among children of school age, but among the younger ones and infants in the homes so that a case of tuberculosis in an adult will, in the future, be a rare affliction; and eventually, tuberculosis will not be a disease of the intelligent races.

It is up to Lymanhurst to pave the way.

(Reading Notices, continued on Page 552)

POSITION WANTED BY PHYSICIAN

A salaried position or association with an established internist or surgeon is wanted by a physician, aged 35, graduate of a Class A school, hospital experience. Speaks German, and is licensed in Michigan, Minnesota, and North Dakota. Address Box 241, Taylor, North Dakota.

OFFICE POSITION WANTED

A woman thoroughly equipped for secretarial work and with large experience with physicians requiring accuracy, desires a position in the Twin Cities. Is capable of editing papers taken by dictation. The best of references given. Address 296, care of this office.

MINNEAPOLIS OFFICE FOR RENT

Very desirable suite of offices, suitable for physician or dentist, sharing reception room with another physician. Inquire Dr. Ernest Z. Wanous, 408 Masonic Temple, Minneapolis.

POSITION WANTED

Registered nurse with experience as anesthetist wishes position in dentist's or physician's office. Will go out of city. Best of references. Address 293 at this office.

SURGICAL NURSE WANTS POSITION

A surgical nurse with two years' experience in a city office, aged 29, desires position with up-to-date physician as office assistant. Experienced anesthetist; can do bookkeeping, laboratory work, etc.; until recently superintendent of a hospital near the Twin Cities. Best of references. Salary moderate if associations are congenial. Address 286, care of this office.

LABORATORY TECHNICIAN WANTS POSITION

University senior with special work in Bacteriology and Biochemistry with actual experience in clinical work, desires position in Twin Cities. Address 290, care of this office.

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"THE CHRONIC APPENDIX"

The above heading was found in *The Practitioner,* a leading monthly medical journal published in London. The article contains much of interest to those who do not believe in chronic appendix or its frequent removal. It is written by C. Hamilton Whiteford, M. R. C. S., L. R. C. P., and he seems to know something about his subject, although, in all probability, he will meet with very strenuous opposition as to his theories, as well as to his conclusions. He says there are four symptoms on which the diagnosis of "chronic appendix" is based:

1. "Pain and tenderness in the right iliac fossa, the other signs of acute inflammation being absent." A. Maclaren denies the value of these symptoms, and feels that the patients operated on are made worse rather than better.

2. "Gastro-intestinal disturbances which do not conform to any known type of disease." And the writer suggests that these patients find themselves in very serious condition after the gravity of the situation has been pointed out by the surgeon.

3. "Symptoms resembling those of gall-stones or gastric and duodenal ulcer." Most of these cases are found to be non-existent when the belly is opened. This statement coincides with the belief of many of our leading surgeons, who have acquired sufficient reputation so that they can say, without blushing, to the patient, "We can tell a great deal better what the situation is after we have opened the abdomen."

4. "A history of previous attacks of acute appendicitis as an argument in favour of the diagnosis of a chronic appendix." Maclaren again gives his opinion that "we do not believe in the chronic appendicitis not associated with, at least, one true attack." Battle, in 1,000 cases of removal of the appendix in the quiet period, records 271 cases in which there had been four previous attacks—an argument used by the surgeons now. In 183 of these cases the appendix was found to be non-adherent.

The poor appendix has been the battle-ground of both medical and surgical practitioners, and, as far as we can determine, the condition has not been settled definitely for one side or the other. Statistics will probably show that during the past year there have been fewer operations for appendicitis than in many previous years, based upon social, economic, and financial grounds. Whiteford cites four cases which illustrate very slight disturbance in the appendix, in which the removal of the appendix did not produce the results expected. In one case a second operation was done eighteen months later, and there were found a cirrhotic liver, a dilated stomach, and a duodenum buried in dense adhesions; and he opines that the appendix was not the cause of any of the patient's symptoms. Another case was that of a young person who had repeated attacks, but was never laid up (except when the surgeon was operating on her); and a third operation was done for the removal of the proximal half of the colon. She afterward became a neurasthenic wreck. He also cites, among nervous people, a cutaneous hyperesthesia diagnosed as appendicitis, but in which no inflamed appendix was found. He finally reaches the following conclusions:

CONCLUSIONS

1. The enormous number of patients whose abdominal ailments are now diagnosed as chronic appendicitis chiefly consists of cases with symptoms of widely-varying causation and for which symptoms the appendix is not responsible.

2. The symptoms attributed to the chronic appendix are not explained by the pathological findings, and are not cured by removal of the appendix.

3. The operation for removal of the chronic appendix not only fails to cure, but frequently makes the patient worse.

4. Attribution to the appendix of abdominal discomforts of obscure origin hinders investigation into the causes of abdominal pain.

5. In the surgeon, the chronic appendix theory produces laxity in diagnosis and, in operating, incisions so small that thorough examination of the abdominal contents is made a mechanical impossibility.

6. In the layman, the operation for removal of the chronic appendix, because of its failure to cure and because of its after-effects, is producing doubt about the necessity for operation in acute appendicitis and mistrust in the bona fides of the surgeon.

7. The chronic appendix theory, judged by the test of the ability of the operation for removal of the appendix to rid the patient of his symptoms, is found wanting.

8. In the interests of surgeons and patients the diagnosis of chronic inflammation of the appendix as a condition requiring operation should be abandoned.

THE MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

The meeting of the Association this year in Minneapolis brought out 385 registrants, and out of this number 183 men were from the country—a rather lower registration than usual. but considering the time of year and the financial conditions in the country it was not unexpected.

The meeting was a very creditable one from every point of view, and the two sections, medicine and surgery, which met in different buildings on the University Campus were well attended. The question arose as to the advisability of meeting in the University medical buildings. A good many men who come from out of town felt that it was rather isolated and difficult to reach, and from what we could learn the majority of the members present thought that a meeting-place down town would be much better. This means, probably, that the men like to run out between papers on the program to see the activity on the streets and to meet their friends in a social way, which cannot be done if the meetings are to be held on the Campus in the future.

The House of Delegates elected the following officers for the ensuing year: Dr. E. Starr Judd, of Rochester, president; Dr. Theodore Bratrud, of Warren, first vice-president; Dr. H. P. Ritchie, of St. Paul, second vice-president; Dr. G. H, Mesker, of Olivia, third vice-president. Dr. Carl B. Drake, of St. Paul, was re-elected secretary, and Dr. F. L. Beckley, also of St. Paul, was re-elected treasurer. The Councilmen whose terms expired were Dr. J. G. Milspaugh, of Little Falls; Dr. W. A. Dennis, of St. Paul; and Dr. H. M. Workman, of Tracy, all of whom were re-elected.

The House of Delegates discussed its policy and particularly its policy toward the component county societies, and urged that in each county the members form an organization, either in their own county or in their own district, and thus enlarge the state organization so that representation in the various counties could be recommended or endorsed by the State Association. This applies to legislative matters, to public health matters particularly, and to public welfare. A committee of fifty men, representing the different societies throughout the state, was recommended and endorsed by the House of Delegates, who will have not only public health and public welfare, but publicity, as part of their function. This really means an educational effort to get before the people and before the legislature some common ground upon which they can all stand for the public good. The Association has been accused time and again by its opponents as being a medical trust. As a matter of fact, every time a body of physicians endorse a public-health improvement measure they cut off their own resources. Their income diminishes, but their effort to improve the public generally. either from a health or welfare point of view, remains unaltered.

The matter of the establishment of a psychopathic hospital was brought up by Dr. A. S. Hamilton in a paper read before the joint meeting, in which he made an effort to explain the need for such a hospital, what it meant to the people, particularly in the early recognition of mental disorders, and especially those due to acute conditions. In a psychopathic hospital such patients could be observed for one or two weeks or longer, if necessary, and a large proportion of them could be returned to their homes without State hospital care. The education of the medical students to the appreciation of the mental side of the individual, his care during that disordered period, and the information which could be gained from the study of his particular case would be of general benefit to the public and of special benefit to the individual.

Then, too, the study of the high-grade defectives would be embraced in this general hospital proposition, and the possibilities of their classification and their future residence could be very easily determined. The psychopathic hospital would also be of great benefit to the courts, and doubtless many patients coming before the courts might be sent to the psychopathic hospital for observation and diagnosis. Some of these people would undoubtedly be spared a court trial, and they could be sent to whatever institution was decided upon. This opinion was emphasized by Dr. W. A. Jones; and the importance of the doctor getting into high-grade politics, politics for the benefit of the people, politics that include the doctor and his willingness to impart information to the people, or to candidates, was stressed. The establishment of such a hospital will in no way interfere with the State hospitals now in existence, except that it would be under the direction of the Board of Control, and it might, and probably will, relieve the State hospitals of many acute cases that could be cared for without legal commitment.

The place decided upon for the next meeting is St. Paul; and the date will be announced later. The meeting will probably be some time in October.

THE CENTRAL NEUROPSYCHIATRIC ASSOCIATION

At the last meeting of the American Medical Association, held in St. Louis in May of this year, the nucleus of a new society was formed. About twelve neurologists of the Central and Western states furnished an organization known by the above title, and elected officers and adopted a constitution and by-laws. Dr. Peter Bassoe, of Chicago, was elected first president; Dr. Karl F. Menninger, of Topeka, Kansas, secretary-treasurer; and Dr. Ernest Sachs, of St. Louis, councilor.

The first meeting took place in Rochester on Saturday, October twenty-first, and the program, which began at eight o'clock in the morning, took up the time by the introduction of neurologic medicine and neurologic surgery clinics. After the noon luncheon, during which the business meeting was held, the men gathered in the Mayo Clinic assembly-room and listened to the regular program, as follows:

1. Experiments on the Etiology of Epidemic Hiccup—Dr. Edward C. Rosenow.
2. Encephalitis Epidemica—Dr. Charles R. Ball.
3. A Case of Left Frontal Brain Abscess Simulating Tuberculous Meningitis—Dr. Ernest M. Hammes.
4. Observations on the Reaction of Neurosyphilis to Treatment—Dr. John H. Stokes.
5. Facial Paralysis Associated with Periodic Facial Edema—Dr. Walter D. Shelden.
6. A Case of Infantile Progressive Spinal Muscular Atrophy (Werdnig-Hoffmann type) with Necropsy Findings—Dr. Joseph C. Michael.
7. Tumors Involving the Fourth Ventricle of the Brain—Dr. Harry L. Parker.

The meeting was very well attended. About forty men, perhaps a few of them guests, were present at the first and introductory session. This organization was formed with an idea that the men in the Central and Western states who are interested in neurology and psychiatry can get together, at some convenient point, once a year for social advancement as well as for medical progress. This in no way interferes with the American Neurological Association, but it does provide for a little more elastic membership.

The following were elected officers for the current year: President, Dr. A. S. Hamilton, Minneapolis; vice president, Dr. L. G. Lowrey, Iowa City, Iowa; secretary-treasurer, Dr. Karl A. Menninger, Topeka, Kansas.

The next meeting will be held at the call of the executive committee.

NEWS ITEMS

Dr. C. V. Lynde has moved from New London to Chokio.

Dr. J. A. Roy has moved from Argyle to Red Lake Falls.

Dr. L. N. Klove has moved from Kensington to Wright.

Dr. P. E. Short has moved from Adams, N. D., to St. Thomas, N. D.

Dr. R. H. Mattson has moved from Minneapolis to Stephen.

Dr. H. O. Grangaard has moved from Douglas, N. D., to Ryder, N. D.

Dr. C. A. Kerner has moved from Tuttle, N. D., to Steele, N. D.

Dr. A. J. Kistler, of Minneapolis, visited Eastern clinics last month.

Dr. G. E. Hoff has moved from Tower City, N. D., to Elgin, Minn.

Dr. D. B. Rice has moved from Aberdeen, S. D., to Ft. Dodge, Iowa.

Dr. C. G. McMahon has moved from Great Falls, Mont., to Superior, Neb.

Dr. A. J. Courshon has sold his practice at Wagner, S. D., and moved to Winner.

Dr. Frederick Fuerste, of Iowa, has joined the staff of the Missabe Hospital at Proctor.

Dr. R. A. Johnson, of Minneapolis, has gone to Europe for a year's study in medicine.

Minneapolis has the lowest pneumonia death rate of the twenty-nine leading cities of the country.

Dr. Edwin Swanson, of St. Paul, was married in September to Miss Emily Ludke, of Amery, Wis.

Dr. Hugh M. Gleason, of Butte, Mont., died last month at the age of 33 in an automobile accident.

Dr. L. M. Roberts, of Little Falls, was elected president of the Morrison County Public Health Association.

Drs. O. L. McHaffie and M. H. Tibbetts have been appointed medical inspectors of the Duluth city schools.

The Northern Minnesota Lutheran Hospital, formerly St. Anthony's Hospital, was opened last month at Bemidji.

The Misses Seeley, two graduate nurses, have opened a community hospital at Beach, N. D., which is open to all physicians.

Dr. A. J. Goodwin, who received a graduate degree in the Mayo Foundation last month, will practice in Wheeling, West Virginia.

Dr. F. S. Chambers, first assistant in orthopedic surgery in the Mayo Clinic, has located in Trenton, N. J., for practice in his specialty.

Dr. W. H. Halloran, of Jackson, has purchased a commodious residence building of that village and will remodel it for hospital purposes.

About thirty additional hospitals in Minnesota have been placed on the standardized list of hospitals by the American College of Surgeons.

Dr. R. W. Nichols, who received his graduate degree from the Mayo Foundation in October, has located for practice in New Haven, Conn.

At its October meeting the Grand Forks (N. D.) District Medical Society discussed the state's public-health service and kindred subjects.

The Huron (S. D.) Clinic has been incorporated by Drs. B. H. Sprague, J. C. Shirley and H. L. Taylor, of Huron. The capital stock is $100,000.

The cornerstone of the handsome structure for a new nurses' home for Asbury Hospital of Minneapolis was laid with appropriate exercises on Oct. 10.

Dr. D. S. Brock, who recently received his graduate degree in surgery at the Mayo Clinic, will be associated with Drs. Storer and Kegel, of Chicago.

Dr. Frank W. Anderson, a member of the permanent staff of the Mayo Clinic, Rochester, died on Sept. 29 at his home in Roslindale, Mass., at the age of 37.

Dr. B. S. Allison, of the firm of Drs. Kellogg & Allison, of Madison, S. D., has moved to Sioux Falls, S. D., and will confine his practice to skin and cancer cases.

A report of the first meeting and organization of a neuropsychiatric association of men in the Central and Western states will be found in our editorial columns.

Dr. Sherman Ripperton, formerly of Wyndmere, N. D., who was unable to practice for some time on account of sickness, is now in active practice at Brewster (Minn.).

The Minnesota State Medical Association, at its annual meeting last month, appointed a committee of fifty physicians to direct public-health and public-welfare work in the state.

The first case of leprosy known in Duluth in many years was reported to the health department last month. The man, a workman, with the disease came from Greece ten years ago.

The physicians of Yankton, S. D., have organized a new staff for the Sacred Heart Hospital of that city that the hospital may be standardized by the American College of Surgeons.

The Minnesota Academy of Medicine held a monthly meeting on Oct. 11, when Dr. Wallace Cole, of St. Paul, presented his thesis, which was on "Primary Tumors of the Patella."

The county boards of Martin, Faribault, Steele, Mower, and Freeborn counties will decide, on the 16th inst., the matter of a joint tuberculosis sanatorium and proper buildings for the same.

Dr. Sarah A. Nimocks, who has been the house physician of the Teachers' College at Winona, Minn., has accepted a like position for the Northern Normal and Industrial School at Aberdeen, S. D.

The new hospital building of the Northwestern Medical and Surgical Association of Brainerd was opened last month with appropriate exercises. The building is three stories high, and is thoroughly modern.

Dr. J. Leonard Lee is now associated with Dr. I. C. J. Wiig, of Wahpeton, N. D. Dr. Lee is a recent graduate of the Medical School of the University of Minnesota, who has also done much postgraduate work.

At the annual meeting of the St. Louis County Medical Society, held in Duluth last month, Dr. O. W. Parker, of Ely, was elected president, and Dr. F. H. Magney, of Duluth, was re-elected secretary-treasurer.

Dr. Philip P. Jacobs, Publicity Director of the National Tuberculosis Association, has been in conference with health workers in Minnesota, making frequent addresses and planning the sale of Christmas Seals.

Dr. R. J. Hathaway, of Glendive, Mont., was appointed last month by the governor of Montana, superintendent of the State Hospital for Insane at Warm Springs, succeeding Dr. J. M. Scanland, resigned.

Dr. B. R. Reinertsen, of the Eitel Hospital staff, Minneapolis, has been induced to take up practice in Buffalo, S. D. He is given the appointment of county coroner and health commissioner at a good salary, which, with the earnings of his practice, assures a good income.

Dr. W. T. Cochrane, practicing in Minneapolis until a year ago, has sold his practice in Monticello, Iowa, and has returned to Lake City, where he formerly practiced. He has formed a partnership with Dr. H. T. Bowers, Lake City, under the firm name of Drs. Cochrane & Bowers.

"Doc" Samuel R. Kirby, the "John Till" of Minnesota, announces that he will build a hospital in Thief River Falls, to which place he has returned after browsing in new fields around Northwood, N. D. What a comment on the intelligence of Americans, both native and nationalized!

Minneapolis has a "clinic," as revealed in a recent coroner's inquest over one of the clinic's victims, which may not be known to all men—and women. A farmer invented a cancer salve and a barber invented a vibrator, and together they started a "cancer clinic" on Nicollet Ave.

For some years the State of North Dakota and the Government acting together have maintained a hospital at La Moure, N. D., for the free treatment of trachoma. The hospital is now so little patronized that it may be closed. The disease is still prevalent, but very little attention is paid to it.

Sioux Falls, S. D., hopes to be one of the three cities of the Upper Mississippi Valley in which infant mortality is to be studied under the auspices of the Harkness Endowment. Sioux Falls has an infant mortality of 100 to 100,000 inhabitants, which can be reduced, it is believed, by two-thirds.

The Lymanhurst Hospital of Minneapolis has opened a department for the free examination of school children for heart trouble. The work is conducted by the Board of Education and the City Health Department. Drs. W. F. Reasner and Max Seaham are the physicians in charge of the medical work.

The Baptists of Minnesota, North and South Dakota, and Wisconsin have joined in a movement to erect one or more hospital buildings on their site of seven acres on University Ave., near Snelling Ave. The Minneapolis Baptists control the Mounds Park Sanitarium, the Midway Hospital, and the Merriam Park Hospital.

The Mississippi Valley Medical Association met in Rochester last month. It elected Dr. Henry E. Tuley, Dean of the Medical School of the University of Kentucky, president. A dispatch from Rochester to the country press of the Northwest states that Dr. Tuley is "25 years old." The figures reversed (52) give his age.

The Devils Lake District Medical Society held its October monthly meeting at Devils Lake, and invited the public to hear the papers on the program, which were devoted to public health in general and were presented by Dr. Louisa E. Boutelle, Dr. Robert Olesen, and Dr. H. E. French, all of the Department of Public Health of the State.

The doctors and dentists of McCook County, S. D., met at Salem, S. D., last month and organized a society composed of physicians and dentists, adopting the name of "The McCook County Medical and Dental Society." Its purposes are indicated by its name. Dr. Le Roy E. Angell, of

Montrose, was elected president, and Dr. A. H. Hoyne, secretary.

Dr. W. Stuart Leech, of Roseau, spoke on "The Pineal Gland and the Condition of the Ego in Sleep" at the meeting of the Mississippi Valley Medical Society last month, and aroused such a storm of protest by his manner of treating the subject that his paper was expunged from the records, but a little thing like that did not disturb the genial doctor from Roseau.

Dr. James W. George, of Minneapolis, died last month of heart disease at the age of 53. Dr. George was in general practice at the time of his death. He had been a member of the medical staff of the Abbott Hospital for the past ten years and had been a lecturer on anesthetics in the Medical School of the University of Minnesota, of which he was a graduate, class of '02.

Dr. J. M. Scanland, superintendent, and Dr. H. A. Bolton, assistant superintendent, of the Montana State Hospital for Insane at Warm Springs, Mont., have resigned their respective positions. Dr. Scanland will resume general practice, and Dr. Bolton will spend a year in post-graduate work at Harvard, and then return to Montana to engage in private practice.

At the annual meeting of the American Railway Surgical Association, held in Chicago last month, Dr. John H. Rishmiller, of Minneapolis, chief surgeon of the Soo Railway, was elected president, and Dr. Louis J. Mitchell, editor of the *Surgical Journal,* of Chicago, was elected secretary-treasurer. The next annual meeting of the Association will be held in Chicago in October, 1923.

The Yankton (S. D.) District Medical Society met at the State Hospital as guests of Dr. and Mrs. G. S. Adams, of the hospital. The program consisted of three papers and the demonstration of cases on internal secretions. The papers were presented by Dr. Helen Borquin, Dr. J. C. Ohlmacher, of Vermilion, and Dr. J. L. Tierney, of St. Louis, Mo., and the demonstration of cases by Dr. F. V. Willhite, of Yankton.

At the annual meeting of the Minnesota State Registered Nurses' Association, held at Rochester last month, Dr. W. C. MacCarty, of the Mayo Clinic, read a paper before the Association in which he warned members against seeking too much legislation and especially against commercialism. He spoke strongly against a uniform system of fees, saying some nurses are worth $200 a week and some 50 cents.

Dr. August Krogh, Professor of Physiology in the University of Copenhagen, spoke before the Hennepin County Medical Society on October 25, as did also the Rev. D. Roy L. Smith, who is a Chautauqua lecturer of national reputation. His subject was the "High Cost of Low Living." The two terms ("High," "Low") seem to have some relation to modern medical living, even without the "Jack" for the third term.

Dr. E. J. Huenekens, of Minneapolis, read a paper on "Child Hygiene in Relation to the Private Physician" at the annual meeting of the American Child Hygiene Association held in Washington, D. C. This Association and the Child Health Organization of America voted to consolidate under a name to be selected by a committee. Secretary Herbert Hoover was elected first president of the new association.

The annual meeting of the Minnesota State Medical Association was held in Minneapolis last month with a rather small attendance by physicians outside the Twin Cities. The following officers were elected for the current year: President, Dr. E. S. Judd, Rochester; first vice president, Dr. Theodore Bratrud, Warren; second vice president, Dr. H. P. Ritchie, St. Paul; third vice president, Dr. G. H. Mesker, Olivia; secretary, Dr. C. B. Drake, St. Paul; treasurer, Dr. F. L. Beckley, St. Paul. Further notice of the meeting will be found in our editorial columns.

Evidence of the work being done in Minnesota along public health lines, private and official, is given by the public health meeting held in St. Paul last week as our current issue went to press. The following agencies participated: United States Public Health Service, American Red Cross, Minnesota Education Association, State Sanitary Conference, Minnesota Public Health Association, State Board of Health, State Board of Control, State Advisory Commission for Tuberculosis, State Dairy and Food Department, State Live Stock Sanitary Board, Minnesota Sanatorium Association, American Water Works Association, and Department of Preventive Medicine and Public Health, University of Minnesota.

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PYURIA IN INFANCY AND CHILDHOOD*

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I have chosen to use the word *pyuria* rather than *pyelocystitis* or *pyelitis*, for I believe that the symptoms and physical findings allow only a diagnosis of pyuria, and not a localization of the infection in the diagnosis of this condition. A large group of cases, in which the prognosis differs widely, has been thrown together. There are cases of multiple abscesses in the kidney with a very high mortality, and cases of mild irritation of the vagina which are associated with the common finding of pyuria. Undoubtedly, a great many cases of so-called pyelitis are mild inflammatory conditions of the vagina only. They are not recognized as such, because on inspection there is not sufficient secretion of pus to make one think of inflammation of the external genitalia, or, as is more often the case, because the condition is not looked for at all. Sources of pus in the urine, therefore, may be the vagina, the urethra and bladder, the ureters, the pelvis of the kidney, and the substance of the kidney. Localization of the source, however, is very difficult, and ordinarily is not attempted. The cases that are due to pus in the vagina can readily be differentiated by catheterizing the bladder; a surprisingly large number of cases of so-called pyelitis are eliminated by this simple procedure. The examination of catheterized urine from the bladder gives merely the information that there is or is not an inflammation in the bladder or urinary tract above, and does not assist in localizing the lesion, if one exists.

In recent years, a number of investigators have studied the bacteriology of catheterized specimens from the ureters, and a variety of findings have been reported. The first series of cases is that of Hinman, who reported twelve cases in girls. In six of these there was cystitis without involvement of the upper urinary tract, and in six involvement of the upper urinary tract and also of the bladder. A second series of eleven cases was reported by Kretschmer and myself. In all of these there was bilateral involvement of the kidneys, besides cystitis of greater or less severity.

In view of the relatively benign course of most infections of the bladder and kidneys, it seems hardly justifiable to make general use of ureteral catheterization in infants and children.

It must not be overlooked that occasionally the bacillus of tuberculosis alone may give rise to pyuria, although in most cases the colon bacillus is present as a secondary invader. Pyuria, due to the bacillus of tuberculosis, may give sterile cultures with the usual cultural procedure. Occasionally, cases are observed in which the cultures are sterile, with large amounts of pus in the urine, even when the possibility of a tuberculous infection can be excluded. I have had an opportunity to observe several such cases recently. Repeated cultures, under aërobic and anaërobic conditions, made from the urine, were sterile. Stains and cultures for the bacillus of tuberculosis, as well as animal inoculations, were negative.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

The emphasis that has been placed on the examination of the urine is meant to indicate its importance in the diagnosis of pyuria. The symptoms are so complex that, in infancy in particular, pyelitis may resemble a number of other diseases, irrespective of those which unquestionably develop secondarily to infections of the digestive or respiratory tracts. To the pediatrician the picture of high fever and pallor with a negative physicial examination is almost pathognomonic of pyelitis. The clinical picture of cystitis as seen in the adult is rare.

In order to present more clearly the various clinical forms in which pyuria may manifest itself, I shall attempt to define the anatomic lesions and give with them typical histories of the course of the infection.

Pyuria may be part of a general pyemic process with numerous abscesses in the cortex or medulla of the kidneys. In such cases pyuria is merely evidence of a generalized infection that is manifest in practically all organs. Sometimes such abscesses occur only in the kidneys and give rise to a severe type of pyuria, closely resembling pyelitis and only to be distinguished from it at necropsy. Numerous epidemics of this type have been described, and, in all probability, they are due to infections by an organism of the coccus group that has a tendency to localize in the cortex of the kidney. Depending on the organism and the diffuseness of the process, the condition may be hyperacute, leading to death within a few days, or it may drag on for a long time, the infant usually dying of asthenia. This type of infection, in particular, seems to be quite as common in boys as in girls; it is practically always produced by a hematogenous infection, localizing in the cortex of the kidney and forming abscesses which, on draining into the pelvis of the kidney, may cause pyelitis.

A second type of renal involvement is secondary to the usual pyelitis, which, after running a rather chronic course, suddenly becomes extremely acute. The onset is often associated with convulsions and anuria, rapidly leading to death. The process is a pyelonephritis without abscess formation, resulting in a complete shutdown of the kidney.

A third type is that which is associated with the damming back of the urinary flow, due to obstruction and localized breakdown of the substance of the kidney into multiple abscesses. The course is usually much more chronic than that of the other types, and the patient may live for a long time with a kidney that, on histologic examination, appears to contain practically no secreting parenchyma. Quite often stones are found in the pelvis of the kidney or in the bladder; in fact, they may be associated with any condition in which there is damming of the urine and infection of the urinary tract. In this connection the cases of obstruction in the posterior urethra, in boys, due to valve formation, are especially interesting.

A fourth type is the ordinary primary pyelitis, which, unquestionably, is very much more common among girls. Usually it is severe in onset with high fever and occasionally chills, but without local symptoms. The course is rather stormy for from four to ten days, then rapidly subsides, and, except for the presence of pus in the urine, the patient appears well. In this type of case coliform organisms are practically always found. The mortality is nil, so that material for anatomic study is to be had only when patients with pyelitis die from other causes. Microsopically, the kidney appears normal; the pelvis is usually free from evidence of inflammation; and the exact histology is not definite. In the more chronic cases, there is usually some thickening of the mucosa and infiltration with leukocytes. The primary lesion in cases of this type has not yet been determined.

A fifth type of pyuria is that secondary to infections other than those in the urinary tract, following tonsillitis, bronchitis, otitis, and other pyogenic infections. This type is usually recognized only by examination of the urine, as there are practically no symptoms pointing to involvement of the urinary tract; and increased temperature, if present, is assumed to be due to the primary infection. The involvement of the urinary tract is usually mild and disappears with the subsidence of the primary infection. Numerous attempts to cultivate an organism other than the colon bacillus have not proved successful in this type of case. / A recent case is of some interest in this connection. A child, suffering from acute otitis media, which had lasted for some weeks, became suddenly worse, with a high temperature. General examination was negative; examination of the urine revealed numerous pus cells and a pure culture of the bacillus coli communis. A culture from the ear contained staphylococci and streptococci. Intravenous injections of the staphylococci into rabbits produced, in a number of them, cortical and medullary abscesses, and, in one case, pyelitis. There was no elective localization of the colon bacillus isolated from the urine when injected intravenously into rabbits. The results of this experiment, being in accord with those of Bumpus and Meisser, suggest the possibility that extra-urinary infections give rise to elective localization in the kidney, with a secondary invasion of the colon bacillus.

The clinical picture of cystitis, as distinguished from pyelitis, has not been well worked out. There are no definite criteria by which the portion of the urinary tract involved can be determined. If there is frequency and painful urination, with a great deal of pus and many blood clots in the urine, and little or no fever, we are perhaps justified in assuming that the infection is limited to the bladder. A case in point is that of a girl, aged three years, who had been perfectly well until she developed pain in the lower abdomen, especially marked by the frequent passing of urine. She had no other symptoms. One-third of the urine, when left standing, was made up of cellular exudate, containing a number of small blood clots. The child was placed in bed, and given plenty of fluid and sodium citrate. The condition cleared up within a week. The symptoms of this patient, frequency and pain on urination, are often noted in girls and boys from the ages of two to six. In most instances, however, the symptoms are not due to inflammatory conditions of the urinary tract. In a large number of cases the urine is entirely negative microscopically and sterile on culture; in a few cases it is alkaline in reaction.

As a cause of pyuria there remains only the group in which the condition is due to an admixture of pus in the vagina. As I have emphasized, the number of such cases in private practice is quite large; and, unless an examination is made of a catheterized specimen of urine, a number of patients will be treated for pyelitis when, in reality, they do not have an inflammation of the urinary tract.

The question arises of how many pus cells are present normally in the urine of infants and children. As a rule, the normal urine in the low-power field in an uncentrifuged specimen contains from four to six pus cells in girls and from two to three in boys. In order to rule out infection, it is essential that an uncentrifuged specimen be examined because in this way only can an idea be obtained of the number of the pus cells present.

When it is impossible to catheterize the young patient, the external genitalia should be carefully cleansed before the specimen is taken. In this way an approximate idea may be obtained of whether the pus cells are coming from the vagina or from the urinary tract. The fact that pyelitis is so often associated with infections elsewhere makes a mistaken diagnosis of pyelitis particularly easy in acute infections in girls. If pus is not found at the first examination and is found at the second or third examination, a diagnosis of pyelitis seems justified. The pus, however, is often due to a local condition in the vagina and not to infection of the urinary tract. This may account for the ease with which a certain number of these cases clear up with the subsiding infection. A case in point is that of the daughter of a physician who was thought to be suffering from recurrent attacks of pyelitis. These attacks were usually secondary to infections in the nose and throat. The catheterized urine was normal and on culture was sterile. I saw the patient while she was suffering from acute tonsillitis. I had seen a specimen of her urine the day before and was convinced that she had an acute flare-up in the urinary tract. Local examination revealed definite redness, but no noticeable discharge, in the vagina. The specimen of urine taken in the usual manner was typical of pyelitis. The child was not catheterized until several days later; this specimen was absolutely normal and sterile, but a specimen passed in the usual way showed an increase in the number of pus cells, typical of pyelitis. This child had been suffering from repeated attacks of mild, catarrhal vaginitis, complicating her tonsillitis.

It is thus very evident that pus in the urine may be evidence only of a very mild inflammatory condition of the vagina, and, on the other hand, the same amount of pus may indicate a very serious complication of the kidneys. In a most severe case of pyelonephritis, secondary to a large stone in the bladder, the patient passed perfectly normal urine, with only an exceptional pus cell, the last two days before she died. It behooves us, therefore, not to be satisfied with a simple diagnosis of pyuria, but to attempt to localize more definitely the seat of the infection and to determine, if possible, the infecting organism. Most cases of pyuria are simple infections of some portion of the urinary tract. Cases due to a stone, to a foreign body, to tuberculosis, and to stricture are the exceptions. Nevertheless, the possibility of each of these conditions must be considered.

TREATMENT

The treatment of pyelitis is essentially a washing out of the urinary tract. Water is the most important single item, and there is no definite proof that anything but water has a marked effect on the inflammation. Occasionally, one reads of the excellent results that are obtained by giving one or two grains of potassium citrate three or four times a day, the increased water consumption being taken as a matter of course. The probabilities are, however, that the entire therapeutic effect is not due to the medication, but to the increased water intake. The amount given is limited only by the amount that can be taken by the patient with comfort. For infants of one year I believe it is important that the fluid intake for twenty-four hours should reach at least one and one-half to two quarts. It is often advisable to cut down the amount of food very considerably in order to utilize the sensation of hunger in getting the child to take large amounts of fluid. If there is difficulty in getting the child to take large quantities of water, it can be given with a teaspoon or with a medicine dropper every few minutes. Plain water is usually taken better than water flavored with saccharine. It can be given to older children in the form of lemonade or orangeade. When, as is so often the case, the water is vomited or regurgitated, fluids must be given by rectum or by intraperitoneal, subcutaneous, or intravenous injection, using the methods in the order indicated. The rectal route cannot be used for a prolonged period because as a rule the irritability of the mucosa soon causes the expulsion of the fluid. In young children small amounts, two to three ounces, injected at intervals of from three to four hours will be very much better tolerated by rectum than the same amount given by the drop method. For rapid absorption, the intraperitoneal route is to be recommended. The fluid may be injected intraperitoneally until the abdomen becomes tense.

Drugs.—Most observers prefer alkalis to the so-called urinary antiseptics. The alkalis are given in amounts sufficient to render the urine alkaline. This sometimes requires very large amounts. It has been my custom to give sodium citrate and sodium bicarbonate in equal parts. Small infants are given doses of 60 grains in twenty-four hours, in five or six doses, and the dose is increased by 60 grains each forty-eight hours until the urine becomes alkaline. Older children are usually given twice this amount in the beginning, and the dose is increased in the same way. Whether the effect of the alkali is diuretic, whether it affects the mucous membrane, or whether it renders the urine a less favorable medium for organisms, has not been definitely decided. A study of bacteria in the urine shows that the number does not decrease. It can also be shown that the colon bacillus grows very well in any alkalinity that may be achieved by the use of these alkalis. Thus, it appears that the diuretic action is perhaps the most important element in the therapeutic effect of alkalis.

Urotropin and salol.—The work of Hinman and Burnham and others has shown very clearly that the concentration of formaldehyde in the pelvis of the kidney is never sufficient to kill, or even to inhibit, bacterial growth. When the infection is limited to the bladder, it is, of course, reasonable to assume that very definite results can be achieved with urotropin. Ten to fifteen grains can be given three times a day. If necessary acid sodium phosphate is given to render the urine acid. The urine must be examined each day, as occasionally hematuria occurs. I believe that a change from alkaline urine by the use of citrate, to acid antiseptic urine by the use of urotropin and acid phosphate, is indicated when the continuation of the alkalis with large quantities of water does not give results. Salol has not been found of any value in our hands.

It is fortunate that the condition, still commonly overlooked, is self-limited and that there is a tendency to a restitution to the normal, treatment or no treatment. It is in the cases in which the infection persists in spite of treatment that one can achieve results by the use of vaccines, ureteral catheterization, and pelvic lavage.

DISCUSSION

Dr. Goldie E. Zimmerman (Sioux Falls): This paper is one of great interest to the general practitioner, as well as to those of us engaged in pediatrics.

Dr. Helmholz has covered the subject very thoroughly, and, I feel, has left nothing for me to add. However, I wish to emphasize the great importance of giving large amounts of water. It is often necessary to starve the patient in order to get him to take more fluids. It is essential that we determine the amount of fluid intake in twenty-four hours. For a child of one to one and a half years old the amount should be about two quarts in twenty-four hours.

THE IRRITABLE COLON*

By Paul H. Rowe, M.D.
MINNEAPOLIS, MINNESOTA

As a medical student I frequently heard the statement that a bowel distress is probably the most common type of abdominal distress which the general practitioner encounters, and is certainly the most frequent complaint for which the gastro-enterologist is consulted. It must be given serious consideration in the differential diagnosis of all abdominal conditions, especially those of a chronic nature.

Fostered by Lane in England, a great deal of attention has been directed to the colon during the past decade. Many articles have been written on "auto-intoxication," intestinal toxemia, and stasis. Some of the more enthusiastic would have us believe that derangements of the colon cause headaches, migraine, and fits. The idea that poisonous substances reach the organism from this source may at first seem plausible, but as yet there is no scientific proof that this actually occurs. Many have attempted to interpret supposed mechanical defects in the gastro-intestinal tract into causes of intestinal toxemia, but in such attempts theories are dealt with solely. chemical interpretations of metabolism which have little or no clinical proof are assumed, or unwarranted conclusions are drawn. It should not be forgotten that the intestine functionates perfectly well even though the *x*-ray shows what appear to be marked abnormalities of position.

That constitutional symptoms of headache, dullness, inability to concentrate, dizziness, anorexia, flatulence, and weakness do arise from constipation is not denied; but, until it is demonstrated that toxins are formed in the intestine which can pass through the mucous membrane of the gut, escape destruction in the liver, and enter the general circulation in sufficient amounts to produce symptoms, we have no right to assume that this occurs. Einhorn states that the colon is our best friend, and that, instead of being a place of poisoning, it is a place in which material may be kept without harm and later on eliminated. Several years ago Alvarez suggested that these symptoms of so-called auto-intoxication are produced through the nervous system by the mechanical distention and irritation of the fecal mass on the rectal mucous membrane. He cites the prompt relief of these symptoms following an enema, which would not occur if they were due to toxemia. Alvarez has observed the same syndrome following the introduction of an inert substance into the rectum. Recently Donaldson has reported experimental observation on this subject and concludes that "in the constipated who are relieved of the classical symptoms of auto-intoxication immediately after eliminative processes, there is no intoxication, no blood pollution, no toxic stool." Hurst states that in his experience "the symptoms generally ascribed to auto-intoxication caused by intestinal stasis are really produced by purgatives."

Because of the too common confusion concerning the function of the large bowel and the frequency of abdominal distress on a bowel basis, it has seemed advisable to emphasize certain points which, though not particularly new, are seemingly little known.

The colon in its entirety is essentially an organ of resorption and elimination. It is a muscular tube capable of contraction and relaxation and is functionally timed to work in synchrony with the rest of the digestive tract. The muscles of the large intestine are arranged in two layers, an outer longitudinal and an inner circular coat, while between these coats and in the submucous coat there are present the nerve plexuses of Auerbach and Meissner.

The nerve supply of the digestive tract is derived from the cerebrospinal and from the autonomic systems. The cerebrospinal nerve supply is limited to the oral and anal orifices. According to Langley the autonomic supply is derived from three regions: (1) from the bulbar autonomic division by the vagus, which is distributed to the walls of the gut from the mouth to the descending colon; (2) from the sympathetic division by the splanchnics, which supply the stomach, small intestine, and greater part of the large intestine; and (3) from the sacral autonomic division, which supplies the descending colon and rectum.

The viscera are insensitive to those methods of stimulation which produce pain in the external body wall. The mechanism of bowel distress is not exactly clear to us. It seems best explained theoretically on the "viscerosensory reflex" described by MacKenzie, where, it is suggested, the afferent autonomic nerves from a viscus convey an increased stimulus to the spinal cord. The increased stimulus affects neighboring centers and thus stimulates the sensory, motor, and other nerves that issue from this part of the cord. This stimulation of a sensory nerve will result in the production of pain referred to the peripheral distribution of the nerve whose spinal center is stimulated, so that the visceral pain is really a "viscerosensory reflex." Tension may also be a considerable factor in the production of this pain. As pain from a viscus is due to strong contractions of non-striped muscle, measures that will relax or decrease the contractions of the muscles will be the natural remedy. If the indications point to the pain arising from painful peristalsis of the bowel, the stimulus should be discovered, if possible, and removed.

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Under normal conditions we are not conscious of our digestion or peristalsis. If, however, the bowel becomes irritable, excessive peristalsis is set up, and symptoms of abdominal distress are likely to appear. It is this painful peristalsis that concerns us in the analysis of bowel distress.

Painful contractions of the intestine may occur either when some qualitatively or quantitatively abnormal irritant stimulates the intestinal wall or when the intestinal wall is hypersensitive to normal stimuli. The commonest cause of a bowel distress is the use of cathartics and enemas. Most of the patients with this condition who consult us have already attempted to cure themselves with laxatives or enemas. Many have formed the cathartic or enema habit. It seems to be a popular notion among the laity that the more stools they have a day the better. Irritating food combinations are also a prolific cause of bowel distress. Here the idiosyncrasy of the individual is of great importance. Another important cause of this distress is exposure to cold, particularly chilling and wet feet. It should also be remembered that irritation may be transmitted through the nervous system. The abdominal distress and loose bowel movements occurring after emotional shock and anxiety are common examples of this. Irritation may come from the blood-stream, as in uremia, where, according to Nothnagel, it is produced by the action of ammonium carbonate, which is derived from the urea excreted into the lumen of the bowel from the blood. Causes of bowel distress due to anatomic disease of the intestine do not come within the scope of this paper.

Under normal conditions material entering the colon is residue left after the food has traversed the small intestine. Most of the digestion and absorption of the nourishment has taken place in the small bowel. This residue entering the colon is mushy and watery in consistency. Its progress through the large intestine is much slower than in any other part of the gastro-intestinal tract. Here the water is absorbed, and the mushy and watery material in the cecum is transformed into material of firm consistency when it reaches the rectum. Most individuals have one formed stool in twenty-four hours; some people have two or even three formed stools a day; occasionally an individual is encountered who has a bowel movement once in three or four days and feels perfectly healthy.

The symptoms of a bowel distress are bizarre, and may be only a sensation of consciousness below the diaphragm, or vary from a feeling of fullness, pressure, or weight in the abdomen to burning, gnawing, less often boring distress, or severe cramp-like pain which doubles the patient up. The distress comes on irregularly with relation to meals, is often present in the morning before breakfast, and may be aggravated or relieved by food taking. It is frequently intermittent in character or of a "come-and-go" type, and is often associated with rumbling and gurgling in the abdomen. Passage of flatus and desire for stool are likely to accompany the distress, and, if these occur, relief is usually experienced. Heat to the abdomen and rest, especially in the recumbent posture, give relief. Cold food and drinks and activity often precipitate or aggravate the distress. Nausea, especially on arising or in the early forenoon, is not infrequent, but vomiting seldom occurs independently of headache. Belching is a common complaint and may give temporary relief. Fatigue and lack of physical endurance are frequently complained of. The mental state is often one of depression and marked pessimism.

The physical examination may reveal an apparently normal individual with a palpable, tender colon. The descending colon is the usual location for early tenderness, but the entire large intestine may be so tender as to suggest peritonitis. Palpation over the descending colon often refers pain or distress to the right side of the abdomen, and, likewise, palpation of the cecum may produce distress over the descending colon.

Not infrequently the descending colon may be felt to stiffen up under the palpating fingers so that it feels like a rope and can be rolled back and forth. At times small moldable masses may be palpated in the region of the descending colon, the so-called "fecal rosary," which occurs in the spastic type.

Röntgen-ray examination of an irritable colon usually reveals a rapidly filling bowel, often of small caliber and poorly haustrated. The walls may be smooth and may be seen to cramp down under the fluoroscope, causing distress. Palpation of the filled colon may be very painful.

Examination of the stools offers us the best opportunity of determining what is going on in the intestine. Routine stool examination to-day is a greatly neglected field. It is practically limited to gastro-intestinal specialists. All patients with gastro-intestinal symptoms who present themselves for examination should have repeated stool analyses. It is not sufficient to smell the bowel movement, make a test for occult blood, and poke it with a stick. Special attention should always be paid to the consistency of the stool. A normal stool is described as cylinder-shaped, about the size of a peeled banana, and of the consistency of butter. The stools from these irritable colons are usually mushy in consistency and contain considerable mucus. At times they are pencil size, finger thick, or flat and ribbon-like if expelled from a spastic colon. Occult blood and pus are not present unless there is an accompanying anatomical lesion. The daily number of bowel movements may vary from one to four or more if the bowel is very irritable. Microscopically the smear may appear normal, but, if the peristalsis in the small intestine has been accelerated, food remnants, in various stages of digestion, will be present. Fermentative stools are usually frothy or of prune-whip consistency, acid in reaction, and contain starch granules in various stages of digestion when stained with Lugol's solution. Large numbers of clostridia are also present.

The diagnosis of this condition, as a rule, is not difficult. It is frequently overlooked. The symptoms, in part, may simulate practically any abdominal disease. The condition is frequently diagnosed appendicitis, cholelithiasis, peptic ulcer, kidney stone, or pelvic disease, or the symptoms are ascribed to adhesions. Chronic appendicitis is a very common diagnosis, and the appendix removed without relief of symptoms. Many of the patients are treated for peptic ulcer, and, if magnesia is used in the ulcer management, the condition is aggravated. In those cases which are difficult to diagnose, it is advisable to place the patient under observation at home or in a hospital and test out the distress with food, alkali, aspirations of the stomach, local applications of heat to the abdomen, and enemas.

A few years ago an Eastern physician, speaking on colitis, said "the treatment is nil, the prognosis is hopeless, and the sole prophylaxis would have been to sterilize the grandfather." Fortunately, it is not "hopeless." If these patients are properly managed, very good results can usually be obtained. It is essential that the patient be told in understandable language what is the trouble, and that he be given a sketchy outline of the physiology of digestion from the layman's standpoint. If he understands what we are trying to do for him, he will co-operate well and follow his directions intelligently. We must aim to educate the patient to manage the condition under his physician's directions. The majority of these patients are addicted to the use of cathartics or enemas. Most of them believe that they are constipated. The average layman's conception of constipation is to go a day or two without a bowel movement. Then he takes a cathartic and evacuates the gastro-intestinal tract. Another day or two passes without a bowel movement because the residue has not had time to reach the rectum, and he again resorts to cathartics. He has always heard that to be healthy he should have a bowel movement every day, and, therefore, he takes daily cathartics or enemas. He has been told that roughage is good for constipation, and he eats freely of vegetables and fruits. Buttermilk, bran, or some of the popularly advertised nostrums are frequently included. The cathartics or enemas may be discontinued, but other intestinal irritants have been substituted for them. The colon will seldom stand this frequent irritation without beginning to produce some symptoms of abdominal distress. If these individuals are given a normal diet, and the stools are examined, they will usually be of mushy consistency. The majority of patients who come complaining of constipation are of this type. If asked when they had their last hard, dry stool they usually cannot remember, and, with a certain amount of pardonable pride, they state that they never allow themselves "to get that way." I once saw a woman who took fifty quarts of water daily as an enema, and when she entered the hospital for bowel management she brought a hat-rack along with her on which to hang her enema can so that she could have her daily internal bath.

The treatment of these irritable colons is to avoid intestinal irritants and to allay peristalsis. All cathartics and large enemas are interdicted. The consistency of the stools is observed with the patient on a normal diet containing little residue. If the bowel movements are mushy the diet is restricted to bland foods. In the more severe cases it may be necessary to confine the patient to bed and give only gruel or boiled milk for several days. Soft eggs, cereals, and toast are then gradually added, the additions to the diet depending upon the consistency of the stool. Rest in bed and local applications of heat to the abdomen quiet down peristalsis. An antispasmodic and powders of bismuth and chalk are also helpful. If the bowels do not move during an entire day, and rectal examination reveals a stool in the rectum, an oil enema of two or three ounces of olive oil should be taken at bedtime and retained over night. If the bowels do not move the following morning, an injection of not over one pint of water should be given. Potatoes, spinach, and other cooked vegetables are then gradually added as the stools become hard and dry, to overcome the tendency to constipation. Later, cooked fruits are cautiously included in the diet, but if mushy bowel movements occur or abdominal distress returns they are temporarily eliminated until the bowel becomes less irritable. For temporary relief of constipation at any time the oil enema is used at bedtime, followed by a water injection in the morning, if necessary. On this type of management the stools, as a rule, readily become formed, the abdominal distress disappears, and the associated symptoms clear up. As the irritability of the colon decreases, the diet may be gradually enlarged until the patient may resume a fairly normal diet, be free from abdominal distress, and have a formed stool. Irritating food combinations and cold-taking may cause a recurrence of the distress and looseness of the bowels in sensitive individuals.

If this condition is recognized and properly managed it will be found that chronic appendicitis is a relatively rare disease, many operations will be avoided, and gratifying results will be obtained.

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DISCUSSION

Dr. J. O. Arnson (Bismarck): The paper that has just been presented, I believe, is one of the most valuable appearing on the program, because it deals with a condition that has received very little attention from practitioners in general. In going over the literature on this condition you will find very little written, and I have not seen a text-book that mentions the matter at all. A contribution like this arouses the interest of the profession at large to a condition that we find from time to time in patients coming to our offices, and it is bound to be of benefit. There is no question but that this condition is not recognized in many cases and diagnoses of chronic appendicitis, peptic ulcer, and cholecystitis have been wrongly made, and the conditions have been treated surgically, or medically, with poor results. My attention was first called, a number of years ago, to this matter in a clinic by Dr. Sippy, of Chicago. He has done much work, establishing this condition as a clinical entity, and from time to time these cases have come under observation. They are not, so far as I have been able to observe, very common. In this connection I would like to ask Dr. Rowe just what his experience is. Our work deals with a different class of patients, perhaps, than his does. Our patients are an agricultural people, coming from the farms, and it is very common to find people addicted to the use of cathartics without any sign of an irritable bowel. I would like to know whether urban habits and increased sedentary habits have any bearing on the subject.

The only thing I could say about Dr. Rowe's paper would be to emphasize the things he has said. He has covered the subject very well in the short time he had.

The matter of stools is very important. It is a fact that as physicians we do not observe the stools as carefully as we should. Patients, as a rule, are very careful about the condition of their stools, and they come to the doctor very often complaining about the condition of their bowels, especially as to the state of the stools. Very often the physician treats the complaints of the patient in a rather haphazard manner. These cases should be investigated. I have in mind a patient who complained of unsatisfactory stools, and it was not until we had him under observation for three days and demonstrated that he was passing an absolutely normal stool that we could clear up his dissatisfaction and the consequent mental condition.

We realize that there are degrees of splanchnoptosis occurring in people without any complaint, but many of these ptosed patients do complain of symptoms which are directly associated with anatomical displacement of the viscera. In many instances the constipation is the result of the ptosis, and the development of the irritable bowel is the result of cathartics used to control the constipation.

In the diagnosis and treatment, one must be very careful, for it is easy to err on the wrong side. We are too apt to become overenthusiastic, and we may slip up on the diagnosis of these cases that have an anatomical and organic basis. For instance, a case coming to my notice a short time ago was one in which the condition was diagnosed as irritable bowel and was treated so for a couple of weeks and the diagnosis later changed to appendicitis with recurring attacks. On removal of the appendix the symptoms all disappeared. I mention this to show that we must be careful in considering these conditions.

In the treatment, Dr. Rowe has mentioned the use of lavage and some irritating types of food. I would suggest to Dr. Rowe that, in order to make his paper more valuable to the general man who will read and use it, he give a list of the vegetables in the order of their irritating quality. This is important because the average man in treating his own constipation is told to eat vegetables. There is a great difference in the irritating quality of vegetables, and, if this information were added to the paper in detail, it would help the practitioner in applying the details of the treatment.

Dr. Rowe (closing): This condition is much more frequent in cities, and people living in rural communities are for the most part exempt, but many severe cases come from small towns. One reason for the greater prevalence in cities is probably because city people are more prone to take cathartics, due to their habits of living. I cannot give any accurate figures, but the frequency depends upon the kind of work a person is doing. I have heard Dr. Sippy say that from 50 to 75 per cent of his patients have irritable colons, and in my practice I think at least 50 per cent have this condition.

THE DOCTOR AND THE LAW*

By Hon. Frank McNulty

Law has been defined as a rule of human conduct; and every line of human endeavor is subject to regulation by law. The doctor, in carrying on his business, is subject to all the rules of law governing mankind in general. There are, however, some rules of law peculiarly applicable to the physician in his professional capacity; and for a few moments I will call your attention to some of the rules that apply to a physician, without any endeavor to state the rules that apply to all lines of business, and without any effort to completely cover all phases of the law as it relates to the practice of medicine.

The word "physician" is defined to mean a person who has received the degree of Doctor of Medicine from an incorporated institution; one lawfully engaged in the practice of medicine. A surgeon is defined as a practitioner who treats injuries, deformities, or disorders by mechanical operations. In its broadest sense the practice of medicine might include the practice of dentistry, osteopathy, and various other lines, but no attempt will be made to cover the law as applicable to such branches of the healing art.

STATUTORY PROVISIONS OF SOUTH DAKOTA

It is well settled that, under the police power inherent in the State, the legislature may enact reasonable regulations for the examination and registration of physicians and the practice of medicine and surgery; and accordingly the legislatures of all states, including South Dakota, have passed laws regulating the practice of medicine. In South Dakota the law requires that a physician should obtain a license to practice his profession. This license may be granted after an examination or upon the certificate issued by the proper Board of another State.

The law also provides that such Board shall have power to refuse to grant a license for unprofessional, immoral, or dishonest conduct on the part of the applicant, and gives the Board power to revoke the license of any physician or surgeon if such physician or surgeon has been guilty of unprofessional, immoral, or dishonest conduct, or has been convicted of a felony, or if such physician publicly professes or claims to cure or treat disease, injury or deformity in such a manner as to deceive the public or shall be grossly incompetent. It is provided that no license shall be revoked except after a hearing, upon notice, and then only upon due proof of the facts alleged in the complaint, a copy of which must be served upon the accused. Section 7711 of the Revised Code of South Dakota for 1919 defines the phrase "unprofessional or dishonest conduct" which is a ground for refusing a license or revoking one after the same has been granted as follows:

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*Presented before the Aberdeen District Medical Society, Aberdeen, S. D., July 20, 1922.

1. Procuring or aiding or abetting a criminal abortion.
2. Employing what are known as cappers or steerers.
3. Obtaining any fee on the assurance that a manifestly incurable disease can be permanently cured.
4. Wilfully betraying a professional secret.
5. All advertising of medical business in which untruthful or improbable statements are made or which are calculated to mislead or deceive the public.
6. All advertising of any medicine or means whereby the monthly periods of women can be regulated or the menses re-established, if suppressed.
7. Conviction of any offense involving moral turpitude.
8. Habitual intemperance.
9. Refusal or neglect to report the existence of a diseased or unsanitary condition to the proper health authorities as prescribed by the regulations of such Board.
10. Prescribing intoxicants to any person in quantities, and under circumstances making it apparent to the Board that such prescription was not made for legitimate medicinal purposes.
11. Splitting fees or giving to any person furnishing a patient any portion of the fees received from such patient or paying or giving to any person any consideration whatever for furnishing any patient.

The law also requires that the physician shall record his license in the office of the Register of Deeds of the County where he resides and is engaged in practice. It also requires that an itinerant physician, that is, one who goes from place to place or from house to house, or solicits by circulars, letters, or advertisements persons to accept treatment from himself or others at places other than his office, or the place of his permanent residence, in addition to the ordinary physician's license, procure an itinerant physician's license from the State Board of Health for which he shall pay the sum of $1,000 per annum. The law also provides a penalty for practicing as an itinerant physician without such itinerant license of a fine of not less than $500, nor more than $800, or imprisonment in the county jail not less than thirty nor more than ninety days, or by both such fine and imprisonment.

The statutes of this State also provide that no personal property is exempt from seizure on physicians' bills except property which is absolutely exempt. It is provided that a physician in order to be entitled to the benefits of such provision against exemptions must be a physician lawfully entitled to practice in this state. It is also provided that in case of physicians' bills there shall be exempt, in addition to the absolute exemptions, household and kitchen furniture including all stoves of the debtor to an amount not exceeding $400 and also two cows, but it is provided that the collection of physicians' bills shall not be enforced by legal process in less than six months from the accruing thereof except when the debtor is about to remove from the state.

It is also provided by the statutes of this State that practicing physicians and surgeons shall not be compelled to serve as jurors.

It is also provided by statute that any person who shall contract or guarantee in writing to cure any disease or ailment and shall fail to cure such disease or ailment or perform such contract or guaranty shall be deemed guilty of a misdemeanor.

It is also provided that every physician who, being in a state of intoxication, without a design to effect death, administers any poison, drug, or medicine, or does any other act, as such physician, to another person which produces the death of such other person, is guilty of manslaughter in the second degree. The punishment for manslaughter in the second degree is imprisonment in the state penitentiary not more than four years and not less than two years or by imprisonment in a county jail not exceeding one year or by a fine not exceeding $1,000 or by both such fine and imprisonment. It is also provided that every physician who, being in a state of intoxication, administers any poison, drug, or medicine or does any other act, as such physician, to another person by which the life of such other is endangered, is guilty of a misdemeanor. The punishment for misdemeanors is imprisonment in a county jail not exceeding one year or by a fine not exceeding $500 or by both such fine and imprisonment.

The statute also provides that a physician or surgeon cannot, without the consent of his patient, be examined as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient; but, if such patient offers himself as a witness, that is deemed consent to the examination of the physician on the same subject.

In a general way the foregoing contains the substance of the special laws passed by the legislature of this State relating to physicians and surgeons. There are, of course, many general laws that apply to the physician in the practice of his profession, but which could not be covered or discussed in a paper of this kind without extending it to an undue length.

RELATION OF PHYSICIAN TO PATIENT

The relation of a physician to his patient is one of trust and confidence. While such relation does not forbid the acceptance of a gift or conveyance to him from his patient the burden is on the physician to prove that such gift or conveyance was lawfully and honestly obtained and that the transaction was above suspicion. A physician or surgeon undertaking the treatment of a patient is not required to exercise the highest degree of skill possible. He is required only to possess and exercise that degree of skill and learning ordinarily possessed and exercised by the members of his profession in good standing practicing in similar localities, and it is his duty to use reasonable care and diligence in the exercise of his skill and in the application of his learning and to act according to his best judgment.

Where a physician holds himself out as a specialist he is bound to bring to the discharge of his duty to the patient employing him as such specialist, that special degree of skill and knowledge possessed by physicians who are specialists in the treatment of such disease in the light of the present state of scientific knowledge.

The fact that a physician renders his services without charge does not absolve him from the duty to use reasonable and ordinary care, skill and diligence. In the absence of a special contract to that effect a physician does not warrant that his treatment will be successful or even beneficial, and he is not responsible in damages for want of success unless it be shown to result from a want of ordinary skill or diligence.

A physician responding to the call of a patient thereby becomes engaged, in the absence of special agreement, to attend to the case so long as he requires attention, unless he gives notice to the contrary or is discharged by the patient; and he is bound to use ordinary care and skill, not only in his attendance, but in determining when it may be safely and properly discontinued, but, if the patient goes to the office of the physician and receives proper treatment and then fails to return for further treatment, in consequence of which he suffers, the physician is not liable.

When a patient is put under the influence of an anesthetic, physicians are required to use the highest professional skill and diligence to avoid every possible danger, but they are bound only to look to natural and proper effects and are not answerable for results arising from the peculiar condition or temperament of a patient of which they had no knowledge.

It is the duty of a physician in taking charge of a case, such as a broken limb, to give a patient all necessary and proper instructions as to what care and attention the patient should give the limb in the absence of the physician, and the caution to be observed in the use of the limb before it is entirely well; and for failure to discharge his duty in this respect he may be liable in damages.

It being the duty of a physician to possess a reasonable degree of learning and skill, to exercise ordinary care and diligence, and to use his best judgment, in cases of doubt he will be liable for his failure to conform to the proper standard whereby injury results to a patient, but mere want of skill or negligence without injury gives no right to recover damages.

A physician is not bound to render professional services to any one who applies, and he may arbitrarily refuse to respond to a call, although he is the only physician available. It has been held that a physician by the exercise of reasonable care and skill ought to discover that an ailment is incurable, that it will not yield to usual treatment, and that the treament will not be beneficial, and if he fails to make such discovery and advise the patient thereof, that he is guilty of negligence. An unwarranted abandonment of a case at a critical period resulting in increased pain and suffering on the part of the patient will render the physician liable in damages, and a physician failing to visit a patient frequently enough is guilty of negligence. Where attention is required, a physician has a right to leave temporarily his practice if he makes provision for the attendance of a competent physician upon his patients, but a physician who leaves a patient, in a critical stage of the disease, without reason or sufficient notice to enable him to procure other medical attendance, is guilty of a culpable dereliction of duty and is liable therefor. Where a patient is possessed of his faculties and able to consult about his condition, his consent is a prerequisite to a surgical operation by his physician. Where an emergency arises calling for immediate action for the preservation of the life or health of the patient and it is impractical to obtain his consent or the consent of anyone authorized to speak for him, it is the duty of the physician to perform such operation as good surgery demands without such consent.

It has been held that where a physician takes an unprofessional man with him to attend a confinement case, where there was no emergency both are liable in damages to the woman.

A physician is not ordinarily liable for damages consequent upon an honest mistake or an error of judgment in making a diagnosis, in prescribing treatment, or in determining upon an operation where there is reasonable doubt as to the nature of the physical conditions involved, or as to what should have been done in accorddance with recognized authority and good current practice.

It is the duty of a physician to act with the utmost good faith towards his patient, and, if a practitioner informs his patient of his want of skill or the patient in some other way is fully aware of it, the patient cannot complain of the lack of that which he knew did not exist.

A physician may decline to respond to the call of a patient unable to compensate him, but, if he undertakes the treatment of such a patient, his liability for negligence or malpractice is the same as in the case of any other patient.

A physician employed by a city to treat patients in the city poor-house is liable to one of such patients who is injured through the physician's negligence.

A physician is responsible for an injury done to a patient through the want of proper skill and care in his apprentice or assistants, but is not liable for a substitute physician or the negligence of hospital nurses or attendants of which he is not personally cognizant.

Where a patient is injured by a physician's negligence and unskillful treatment, the loss or injury directly and naturally resulting from his fault and negligence is the measure of damages. The amount is to be determined by the jury from the facts and circumstances of the case, and the pecuniary loss resulting from inability to labor, bodily and mental pain and suffering, loss of time, and actual expenses incurred as resulting from or through the want of skill or care of the physician, may be taken into account; likewise the character of the injury, as to whether it is permanent or temporary, and the condition and circumstances of the injured party.

It has been held that punitive damages may be recovered where a physician has been guilty of gross negligence amounting to reckless indifference in treating his patient.

COMPENSATION

In England, under the common law, a medical practitioner had no remedy at law to recover a remuneration for his services. He was presumed to act with a view only to an honorary reward. This rule has never been in force in this country, and a physician is entitled to recover for his services in the same manner as any other person who performs services for another.

An employment of a physician by a party, without express agreement as to compensation, raises an implied agreement on the part of such person to pay what the services are reasonably worth. It has been held quite generally by the courts of this country that a physician may not recover for professional services unless he has complied with the requirements of the statute as to qualifications. In the absence of an express agreement the physician is entitled to compensation without regard to the measure of his success in effecting a cure.

A patient is liable for the fees of a consulting physician, as well as those of the attending physician.

The rule that, where a person requests the performance of a service, there is an implied promise to pay for the service, does not apply where a person requests a physician to perform services for a patient unless the relation of that person to the patient is such as raises a legal obligation on his part to call in a physician and pay for the services, or the circumstances are such as to show an intention on his part to pay for the service, it being understood by him and the physician. Therefore if a by-stander at the scene of an accident calls a physician to attend the injured person there is no obligation arising from that fact on such by-stander to pay the physician. Where there is no agreement as to the compensation the law raises an implied promise to pay so much as the services are reasonably worth.

A physician cannot sustain a claim for larger compensation for non-expert services than an ordinary man would be entitled to for the same services on the ground alone that as an expert in his profession his time is more valuable than that of an ordinary man. There is no provision in the law of this state granting to a physician any other fees as a witness than such as is allowed the ordinary person, and if a physician gets a larger compensation for services as a witness it must be by special contract.

A physician is entitled to recover the ordinary and reasonable charges usually made for such services by members of the same profession of similar standing; therefore, to prove the value of such services, customary charges of physicians for like services in the same locality or neighborhood may be shown.

There are, of course, many rules, exceptions to the rules, and qualifications of the rules, which I have not attempted to cover in this paper. To completely cover them would extend the length of this paper unduly. Your secretary in asking me to prepare this résumé asked for a discussion of some of the general rules of law of interest to physicians in this state. Every man, in a general way, should familiarize himself with the rules of law peculiarly applicable to his business, but it is inadvisable, if not dangerous, for such person, in important or serious matters, to rely on his own knowledge of the law unless, of course, he is continuously in the practice of law.

The foregoing, however, will present briefly the general principles of the law applicable to the practice of medicine, and, I believe, covers the proposition which your secretary had in mind when he asked me to prepare this paper.

GAS CYSTS*

By John E. Engstad, M.D.

GRAND FORKS, NORTH DAKOTA

As far as our knowledge now seems to indicate, gas cysts in the human being are comparatively rare,—in fact, they were entirely unknown up to 1876, when Bang, of Copenhagen, reported the first case, followed in the same year by Berry, an American, who also reported one case. No further mention of this affection was made until in 1908, when Finney, of Baltimore, reported the second case in this country, followed by Sloan, of Cleveland, with a case last year. All the cases terminated fatally.

Recently Dr. Maurice Letulle, in collaboration with Dr. Tuffier, collected and tabulated all the known cases in France, and presented them in a careful review of the existing present meager literature on the subject. They were the first to make a painstaking and exact histopathological study of the disease, and their elaborate and deeply scientific treatise appeared in the *Bulletin de L'Academie de Médicine* for November, 1919.

Although the observations on this interesting phenomenon have been extremely rare, we have no right as yet to the postulate that it is not much commoner than at present supposed. A majority of the cases reported by Tuffier and Letulle were found only at post-mortem and had not been suspected before. Only half a score of patients were reported as living following operation; and it is significant that these were cases in which operative relief had been undertaken for pathological lesions other than air tumors.

Tuffier and Letulle were the first to describe the anatomic details of the cysts. They found that these lesions have a characteristic microscopic appearance and occur throughout the abdomen generally. They are multiple-disseminated, and are found most commonly in the intestinal mesentery, varying in size from a pinhead to a large orange and contain a non-irritating gas.

Cases have been reported where the cysts have been found grouped into large masses, causing pressure on the surrounding organs. The cysts may also be found in the submucous and subserous layers, with walls of dense sclerotic tissue, poor in fixed cells or blood vessels, in which elastic fibers appear, but without smooth muscle. The inside walls of these cysts are lined with a layer of endothelial cells. The lesions are essentially chronic, with obliteration of the lymphatic vessels situated about the cysts (lymphangitis obliterans) due to a cicatrix closing the lumen of the ducts.

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*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

Letulle has proven that these cysts are invariably found in lymphatic tracts, and his conclusions are that the disease is a chronic lymphangitis with obstruction of the distal ends of these ducts.

The origin of the gas is not clear. At present there are three theories:

First: That the gas is produced by a liquefying coccus or bacilli coli.

Second: The mechanical theory, which is stagnation of lymph due to obstruction of the ducts and consequent change into gas. Allow me to quote somewhat extensively from the French authorities. Letulle says, "The peritoneum presents, taken altogether, extremely varied lesions which it is well to study successively—first, the visceral layers of the intestine, then in the folds of the mesentery, particularly. The peritoneal coating of the small intestines is altered throughout the length of the cystic regions; they always show a thickening, sometimes of a hyperplastic sclerosis, extremely variable, simple or accompanied by peritoneal adhesions more or less thickened, sometimes by the presence of gaseous cystic formations in the thickening of the serous coat itself. In the latter case the number of cysts, their dimensions, and their coherency produce the most marked disorders. The connective tissue of the serous membrane is changed into trusses of fibroids, often scarcely vascular and even hyaline, and of a minuteness that is extraordinary." And further, the author says: "The detail with which we have entered into the subject of the formation of gas cysts of the intestines and peritoneum allows us to establish without possible doubt the seat of these cysts and their origin. They are formed at the expense of the lymphatic vessels of the intestines and of the peritoneum becoming extremely dilated and attached by chronic inflammatory lesions of more or less long standing."

Third: Sloan's theory, That they are true intestinal emphysemus, due either to a gastric or duodenal ulcer, or other lesions in the intestinal tract which may under pressure force the gas which is always found in the upper food tract into the layers of the subserosa, where it will follow the paths of least resistance until arrested by an inflammation in the lumen of some lymphatic duct.

To these hypotheses I may add my own, that lymph from the digestive organs is under a high carbon dioxide tension, according to Tiegerstadt, up to 53 per cent in volume greater than in the blood, and excessively high carbon ion-concentration which might be disassociated through bioelectric action setting free a large number of ions in gaseous form, either carbon or oxygen or both.

Duprez claims that these monolympho-cell or gas cyst complications are in the majority of cases absorbed before they become a pathologic menace.

All investigators and surgeons report multilocular cysts, our case being the only monolocular so far observed.

In the future the *x*-ray may be our chief mechanical means in guiding us in making preoperative diagnosis.

CASE

Mrs. S., a Slovak woman of the peasant type, developed at the age of thirty-five a rapidly growing myoma of the uterus, for which I performed a complete hysterectomy in 1905. The following year she sustained a fracture of the upper part of the right parietal bone, for which a decompression was performed to remove a few spicula of bone.

In 1912 she underwent an operation for cholelithiasis, cholecystotomy being performed. Following these operative procedures she enjoyed good health for about two years, when agonizing attacks of pain over the umbilical region, radiating towards the right lumbar, became evident. Palpation of the old scar over the gall-bladder was negative and did not elicit any tenderness nor any symptoms indicating accumulation of foreign matter in the gall-bladder. Repeated röntgenograms gave negative results. A mild cystitis developed, and catheterization of the right kidney gave evidence of a chronic infection in this organ. As the patient was inclined to obesity, röntgenograms of the kidney were not satisfactory and gave no valuable results. The pains were of such intensity that heroic doses of morphine gave only slight relief; and, as the left kidney functioned perfectly, it was decided to resort to exploration of the right kidney. On exposure the pelvis of the kidney was found large and filled with infected urine seemingly under pressure, and nephrectomy was performed. The patient rallied after the last operation without any shock or ill effect, and we were laboring under the belief that this much-operated-upon woman had undergone her last operation. But our expectations of a speedy and complete recovery were rudely shattered on the third day, when paroxysms of such agonizing pain reappeared that the patient rapidly went into a state of shock. As morphia did not relieve her, a wee bit of chloroform was administered. The patient obtained a few hours respite, when the same distressing symptoms reappeared. There was no obstruction of the bowels, no jaundice, nor any signs of calculus in the right ureter, and we therefore concluded that a calculus in the cystic duct might be the offending causative factor in these paroxysms of pain. As the patient was rapidly losing strength, she was prepared for laparotomy. Old adhesions made the discovery and isolation of the common and the cystic ducts extremely difficult, but, much to our surprise, they were found normal. A careful search of the abdomen amid all the adhesions was made, and a distinct fluctuating tumor about the size of a large orange was found beneath the posterior fold of the peritoneum, near the foramen ovale.

We hastily decided that it was a pus sack, and it seemed expedient to drain it through the upper angle of the nephrectomy wound. A pair of blunt-pointed forceps was introduced into this wound, the point being guided to the posterior wall of the sack, much care being taken to avoid wounding the vein. Much to our surprise, the tumor instantly collapsed with a hissing sound as it was punctured by the blades of the forceps.

The patient rallied and was free from pain and discomfort up to the tenth day, when the same agonizing pains reappeared, which, as the first time, were not relieved by the administration of grain doses of morphia. In desperation she was again anesthetized, the abdomen entered through a small new incision, and the dressing forceps was again introduced into the cyst, which had completely refilled in the meantime. The blades were spread apart to enlarge the opening, and the sack was forceably filled with strips of gauze soaked in iodine.

Enucleation of the cyst was deemed too hazardous, as it was connected on its outer border with the vena cava, and in addition it was firmly fixed to the posterior structures. Our patient made a remarkably good recovery up to the tenth day, when a rash appeared near the wound, which we discovered when we were preparing for the removal of the drains. The rash spread, and we finally concluded that it was an erysipelas infection, instead of an iodine erythema. On investigation it was found that a patient in a neighboring room had suffered from unrecognized erysipelas for a short time, and the nurse on duty in this case substituted as night nurse for our patient. She was immediately removed to the City Hospital for contagious diseases, where she made a stormy but complete recovery. In due time, we had a mixed infection in the nephrectomy wound and a fistula developed which closed after a few months' time. She has enjoyed uninterrupted health from that date, with the exception of two slight attacks of sharp pain following physical exertion, which we attribute to stretching of some of the innumerable adhesions of the abdominal organs. I finally concluded that my patient had suffered from the rare infection, pneumolymphangitis.

The majority of patients suffering from these lesions give no symptoms indicative of the disease, and in a number of cases they do not seem incompatible with good health. In our case the paramount objective symptom was the intense pain, a symptom not reported by any other observer. The location of the cyst and the condition of our patient precluded a careful examination of its walls, but we can reason from the intense pain that there was muscular tissue in its walls traversed by an abundant nerve supply, both motor and sensory, with branches from the splanchnic vasomotor system. The intense paroxysms of pain were undoubtedly due to spasmodic contractions of the muscularis of the walls of the cyst, pinching its abundant nerve supply, resulting in the agonizing pain from which the patient suffered. The capacity of the cyst was estimated by hurried palpations at both operations, and, judging from the amount of gauze introduced in its cavity at the second operation, was about 100 c.c.

If we reason from the theory that the causative factor in these lesions is a gas-producing bacterium, we have grounds for the belief that iodine would destroy the endothelial lining of the sack, and would inhibit the growth of the bacteria. The accidental infection of the operative field by a virulent colony of streptococci erysipelatis may also have been a contributing factor in what we believe is the obliteration of the sack. The erysipelas infection did not extend to the comparatively fresh abdominal wounds.

At the present time the patient is enjoying excellent health.

A SCALPING OPERATION FOR ABSCESSES ABOUT THE RECTUM*

By W. A. Fansler, A.M., M.D.
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It is with hesitation that I attempt to contribute anything to the literature concerning perirectal infections, since there is hardly a subject about which more has been written.

The fundamental principles underlying the treatment of these cases are well defined and agreed upon, and I do not wish to offer any addition to these. What I do wish to offer, is a method whereby, it would seem, these principles can be more thoroughly carried out.

It is agreed—

First, that a substantial percentage of these cases have a connection with the bowel, and so are really complete fistulas from the moment the abscess is opened.

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*Presented at the annual meeting of the American Proctologic Society, May 22-23, 1922, St. Louis, Mo.

Secondly, that whether there is a bowel opening or not, the best treatment is early and radical incision, and that the external wound must be kept wide open while the cavity is granulating from the bottom outwards. When this dictum is followed, a cure will result in all cases where there is no internal opening, and can be secured in some cases where one is present. In my opinion the chief cause of failure, in these cases, is an inability to keep the incision wide open so that the depth of the cavity can be properly medicated. That this difficulty is real is shown by the fact that the simple, straight incision has practically been discarded for the T or cross incision. In my hands even these have been only partially satisfactory. Though a very radical incision is made at the time of operation, when the swelling due to the abscess subsides, the wound has also shrunken, and the edges quickly contract down and heal together. This is especially true if the patient is a little careless in coming in for dressings, or if the deeper part of the wound is slower than usual in granulating. The result is a deep cavity or sinus with a small external opening which renders healing difficult or impossible.

With these facts and experience in mind, it occurred to me that a more radical procedure, including actual removal of a portion of the skin overlying the abscess, would be an improvement insofar as the too rapid closure of the skin opening was concerned. This procedure, for the sake of a name, I have been pleased to term "scalping the abscess." The procedure is as follows:

A liberal cross incision is made as near the anus as possible, and the extent of the abscess cavity is explored with the finger and probe. This having been done, the four segments of skin, made by the incision, are removed, giving an approximately circular opening. The size of this opening depends on the size of the abscess cavity, the general principle being to have the circle of skin removed slightly larger than the greatest diameter of the abscess. This, however, is subject to any variation judgment may dictate.

We now have a cavity which has the approximate shape of a truncated cone, the base being outward. A cavity of this shape is easily dressed and cleansed, and, what is more important, medication may be accurately applied to the depth of the wound. Where this can be done the use of nitric acid or 40 per cent silver nitrate will frequently heal a small opening into the bowel, and the case be terminated successfully as though only a simple abscess were present.

If later division of the sphincter is necessary the patient is in no worse condition than following ordinary incision of the abscess, and in fact the secondary operation is usually more simple, inasmuch as the tract is definitely defined.

It might seem that, with the removal of a flap of skin in this manner, convalescence would be prolonged. I have not found this to be the case. By the time the wound has granulated from the bottom, the skin has contracted and healed down to meet it, and there is little delay in complete healing.

This method is almost applicable to all cases, and, to my mind, it posseses several advantages.

First: You have a wound which can be thoroughly inspected and of such shape that it can be thoroughly cleansed and medicated until healing has occurred.

Second: Due to the facts that there is more through drainage and that the wound can be more accurately treated, this method will cure with one operation a larger percentage of these abscesses than when the various types of incisions alone are used.

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THE NEW SOCIAL PSYCHOLOGY

For the moment we are being deluged with books on this new—or old?—subject. At all events, it has been given a boost by such authorities as John Dewey, who writes on "Human Nature and Conduct"; Morris Ginsberg, who writes on "The Psychology of Society"; and James Mickel Williams, who writes on "The Principles of Social Psychology." Consequently, if one wants to intoxicate oneself with new or uncertain psychological problems one has a choice of books from which to select the one best adapted to one's own ideas. As a matter of fact, this present movement in psychology is immature among the sciences and contains many of the obsolete notions about the human mind and about society,—so says the *New York Times Book Review*. It is said, too, that most people have a rather popular idea that the mind is something very intangible and is located somewhere inside of our bodies, just where they do not know. Some of the older thinkers believe it is one of the higher functions of the brain, and others think that it is a part of the whole human economy, and that the emanations therefrom, the activities, spring from not only the nervous system but the arterial and somatic systems. It is best to acknowledge, primarily, that we know comparatively little about the mental processes; and to one who would like to study the subject he is advised to pick up the book "The Mind in Its Making." There he will get a rather definite idea of how the mind is evolved, and how it is related to the functions of the body as well as the functions of society. The reviewer of these books mentioned above believes that we certainly find that the special branch of study called "social psychology is a science that is standing on its head instead of on its feet, and the attempt to explain society in terms of mind is sheer topsy-turvydom."

In Professor Dewey's book on "Human Nature and Conduct" we find a work that is scientifically constructive, building up with rare skill its explanation of how mind can be understood in the concrete only as a system of beliefs, desires, purposes, which are formed in the interaction of biological aptitudes with social environments. That suggests, of course, that biology is one of the things that should be intimately considered because it furnishes a key to the understanding of the whole situation, and that is "habit." Behavior also plays a very important part in our development. These ways of behavior involve interaction, that is to say, prior groupings; and to understand the existence of organized ways or habits we surely need to go to physics, chemistry, and physiology rather than to psychology. Dewey says, further, that this leads to the definition of the new science in these terms: "The primary facts of social psychology center about collective habit, custom. In addition to the general psychology of habit—any intelligible sense of that word—we need to find out just how different customs shape the desires, beliefs, purposes of those who are affected by them. The problem of social psychology is not how either individual or collective mind forms social groups and customs, but how different customs, established interacting arrangements, form and nurture different minds."

All of these things lead, of course, to the discussion of these so-called lectures and books on practical psychology. We see notices in the press almost daily of someone who has a new method of teaching development of the mind, development in business, character reading, and many other things that are allied to this. They have the temerity to suggest that there are "danger signals" of age, and they give tests as to whether one is growing old or not. These forms of so-called applied psychology are largely commercialized ideas. They have very little foundation except that the lecturers and teachers of these applied sciences are out for what financial gain they may acquire. Psychology is a much over-rated term, as we all know, and it has its limitations; but it is still surrounded by too much mystery, too much that does not appeal to common intelligence, and it is often of no practical value whatever. The true psychologist must be very intimately informed as to the mechanism of the nervous system, its methods of accomplishing its purposes, and its simple functions in which are produced mental reactions and physical activities. When one has studied, first, the anatomy and physiology of the nervous system one is slow to accept the new types of psychology which are at present presumably popular.

CHRISTMAS SEAL SALE

The time of year has arrived when all sorts of funds are being solicited, notably that derived from the sale of Christmas Seal stamps. Last year the sale amounted to something like eighty thousand dollars in Minnesota, and this year the committee of the Public Health Association, with Dr. C. L. Scofield, of Benson, as president, expect to pass this mark. This effort is a very good illustration of what small contributions may do in the way of the accumulation of large sums of money. It is almost like the sales tax which the Government has tried to introduce to the country, whereby a small and insignificant tax may be applied on each article that is sold at retail or wholesale. The ultimate result of such a tax would amount to millions of dollars for the Government. And the Christmas Seal sale may amount to any conceivable sum for the necessary work of carrying on the educational and progressive methods of the Minnesota Public Health Association.

This enables the Association to introduce a new method of attention through publicity by the press throughout the state. It may mean, too, that the press will heartily co-operate with the Public Health Association, and it is to be devotedly hoped that it will be accomplished. However, if the daily press, and particularly the press of the cities, is not willing to give sufficient space to the subject, the Public Health Association may take advantage of advertising rates and publish what they choose. So far the press has been extremely magnanimous in its generous attention to the sale of Christmas Seal stamps. The organization of public health work is being rapidly carried out and it means that eventually all county organizations will contribute their share, not only of the work but of publicity, to the effort made to benefit the people of the state. If the press can be convinced that this is a legitimate enterprise, carried on for legitimate purposes and for the benefit of the public welfare, they will do anything within reason to help the cause along.

What is said above in regard to Christmas Seals in Minnesota applies in all States where these Seals are sold.

Incidentally, the Community Fund drive is to be instituted shortly, and THE JOURNAL-LANCET, with its supporters and readers, urges that all contributors duplicate, if possible, their original contributions. This is something that cannot be overlooked, and is vital to the comfort and necessity of the poor. Consequently, when the solicitor comes in, renew your pledge, even though it hurts to put down the amount opposite your name. And remember, too, that you are doing an immense amount of good through the various organizations which participate in the expenditure of the Community Fund.

THE MINNESOTA STATE SANITARY CONFERENCE

Dr. George S. Wattam, of Warren, Minnesota, was elected president of the Sanitary Conference, which held its meeting in St. Paul the latter part of October. Dr. O. W. Parker, of Ely, was elected vice-president; and Dr. A. J. Chesley, of St. Paul, was elected secretary, which simply added to his secretarial duties as a member of the State Board of Health. The program was a very interesting one and was well attended, and it shows what persistence and perseverance by the officers of such associations can do when they are determined to get an audience.

Dr. Chesley has been long connected with this line of work, and is a past-master in the art of getting up programs and the conducting of conferences. The discussion was participated in largely by men associated with sanitary work. Among the speakers was Mr. Perry S. Williams, of Minneapolis, vice-president of the Community Advertising Department of the Associated Advertising Clubs of the World. It is a step in the right direction, to have such men in attendance. It brings us into much closer association with the public press, and again it is hoped that the Associated Press will take up all these matters which concern the public health.

BOOK NOTICES

Lessons on Tuberculosis and Consumption for the Household, Showing How to Prevent Tuberculosis, How to Recognize Its First Symptoms, How to Win Back Health. By Charles E. Atkinson, M.D. Cloth, $2.50; pp. 470, with 21 illustrations. New York and London: Funk & Wagnalls Company, 1922.

This is a book of 460 pages, including fifteen illustrations, telling the story of tuberculosis in plain everyday language. It is written by a physician who has himself "played the game" and who therefore views the subject from the standpoint of the other fellow, as well as from that of the medical advisor. The subject matter is arranged in sixteen chapters or "lessons," covering the entire field of tuberculosis, emphasizing early recognition of the disease, proper treatment, and the truth about climate, diet, etc.

A number of excellent books on this subject have been written for the lay reader; but Dr. Atkinson's book, it seems to me, is the most complete and helpful presentation which has thus far appeared. Not only will the lay reader discover in these pages much valuable information, simply and attractively set forth, but physicians will find here interesting reading and many helpful suggestions. Moreover, the author's enthusiasm and hopeful attitude, born of many years of valuable experience, must be an inspiration to any reader.

—Walter J. Marcley, M.D.

The Medical Clinics of North America, Vol. V, No. 3 (The Philadelphia Number, November 1921). Octavo of 362 pages, 44 illustrations. Published bi-monthly. Price per clinic year: Paper, $12.00; Cloth, $16.00. Philadelphia and London: W. B. Saunders Company, 1921.

Twenty-four clinics are presented in this number, many of unusual interest.

Dr. James Anders emphasizes the importance of diagnosing harmless forms of cardiac disturbance, such as extrasystoles, and also points out the frequency with which a unilateral hydrothorax, unaccompanied by external dropsy, is overlooked in cardiac disease.

Dr. David Riesman gives an interesting review of the thoracic diseases which may present abdominal manifestations. He discusses points in differentiation between the abdominal symptoms of pneumonia and pleuritis, and those produced by pathology below the diaphragm.

In his clinic, Dr Joseph Sailer discusses a variety of abdominal conditions in which errors in diagnosis were made. He emphasizes the point that the manifestations of abdominal diseases may be very atypical.

Dr. Chevalier Jackson discusses eight cases in which bronchoscopy or esophagoscopy was done. He considers the "asthmatoid wheeze" diagnostic of a foreign body in the bronchus. "Arachidic bronchitis," a severe and toxic form resulting from the aspiration of a peanut kernel into the bronchus, is described.

Dr. Spiller reports a case of aërocele of the brain. This is a rare type of lesion and consists of a distinct cyst, containing air, usually in the frontal lobe, and practically always following skull injuries involving the frontal sinuses. The diagnosis is made by Röntgen examination.

Schamberg and Klauder point out the necessity for a more sensitive test than the present Wassermann test for syphilis. They cite a number of cases showing that a much finer differentiation may be obtained by the Kolmer modification, which is a quantitative Wassermann reaction.

Dr. Kolmer believes that, with the more highly perfected Wassermann technic, more significance should be placed on weakly positive reactions. He states that the most sensitive test should be used, due to the fact that syphilis often produces a very slight biological reaction in the body.

Dr. Piersol analyzes one hundred and sixty cases of chronic vascular hypertension and points out that the most important factor influencing the prognosis is the underlying cause of the hypertension. The most common causes of death are cardiac failure and cerebral accidents.

Dr. John H. Musser reports four cases of leukemia, lymphatic and myelogenous, in which marked improvement in the general condition of the patient, the blood picture, and size of the spleen resulted from Röntgen exposure of the spleen.

Dr. Norris discusses the diagnosis of acute tuberculosis, emphasizing its clinical similarity to typhoid. The *x*-ray, physical examination of the lungs and evidences of meningitis aid in establishing the diagnosis.

Dr. Pepper emphasizes the necessity for a careful examination of the chest, both before and after operation. The following post-operative pulmonary complications may occur: (1) collapse of lung tissue, usually of the lower lobe; (2) embolism and infarction; (3) irritation and infection, as bronchitis, pneumonia, or abscess.

Dr. Kern states that the particular proteins in dust to which an asthmatic person is sensitive may be suspected after a careful investigation into the conditions under which attacks occur. This is then confirmed by proper skin tests.

Drs. Weisenberg and Patten describe the methods of investigation of pituitary disorders. They make a plea for a more systematic method of investigation in the study of endocrine disorders.

Dr. Wolferth discusses the method of application and mode of action of quinidine in heart disease, and concludes that it has not as yet taken a definite place in cardiac therapy.

T. Grier Miller states that all duodenal ulcers pass through the non-deforming or slightly deforming stage and at this time are distinctly amenable to medical treatment. Therefore early diagnosis is essential.

Occult tuberculosis, a type in which pulmonary symptoms are practically absent, but in which symptoms of neurasthenia predominate, is discussed by Dr. Landis.

Drs. Fox and Farley report a case of lymphogranuloma, with autopsy findings, associated with miliary tuberculosis. Their case is similar to that described by Sternberg, which he believed tuberculous in origin. They conclude that the relationship between Hodgkin's disease and tuberculosis is unsettled.

Dr. Torrey discusses emphysema, pointing out that the different types are essentially similar, all depending on diseased lung tissue and overstrain. Emphysema covers up and complicates both physical findings and *x*-ray diagnosis in pulmonary disease.

Dr. George Pfahler reports good results in the treatment of hyperthyroidism by radiation. He describes his technic of treatment.

Dr. Thomas Kelly presents a case of dissecting aneurism of the aorta, with autopsy findings. He partially reviews the literature on the subject.

Dr. Thomas McCrae discusses the usual routine measures in the diagnosis and treatment of acute nephritis.

Dr. Elmer Funk reports a case of moderately advanced pulmonary tuberculosis, associated with evidences of premature development and also masculinity, such as hair distribution. He suggests that this type of endocrinopathy may be due to a tuberculosis of the suprarenal cortex. He also discusses clubbing of the fingers. The etiology involves both vascular congestion and circulating toxins.

Dr. Henry Mohler reports two cases. The first is a case of renal glycosuria; the second is a case of bilateral tumors of the neck in which the differential diagnosis is discussed.

Dr. Edward Weiss reviews the various kidney function tests. He recommends the urea concentration test because (1) it is a normal excretory product; (2) it is excreted practically only by the kidney; (3) a large dose of urea throws a strain on the kidney, so that it is really a test of kidney reserve and will give evidences of reduced function where other tests fail.

Dr. Krumbhaar reports six cases of pituitary disorder. He believes that acromegaly is due to an increase of the acidophil cells of the anterior lobe. He suggests a more precise terminology and gives five types of pituitary disorder, hyper- and hypo-prepituitarism, hyper- and hypo-postpituitarism and dyspituitarism.

—Morris H. Nathanson, M.D.

NEWS ITEMS

Dr. M. L. Stiffler has moved from Yankton, S. D., to Minneapolis.

Dr. G. C. Hoff has moved from Tower City, N. D., to Elgin, Minn.

Dr. E. C. Stone has moved from Balfour, N. D., to Minot, N. D.

Dr. R. E. Swanson has sold his practice at Alexandria, and will locate elsewhere.

The Hutchinson Community Hospital has placed a large order for additional equipment.

Dr. Walter H. Sahr, of Minneapolis, has returned from a year's special study in Vienna.

The new Bowdle (S. D.) Community Hospital is under the charge of Dr. T. D. Jones, of that city.

Dr. Jacob Thorkelson, of Anaconda, Mont., has resigned from the staff of the State Hospital at Warm Springs, Mont.

Dr. Irving J. Cross, of Wahpeton, N. D., died last week at the age of 49. Dr. Cross was a graduate of Michigan, class of '04, and had practiced only a few years in Minnesota.

Drs. Archibald Howe and Virgil J. Schwartz, of Minneapolis, and Dr. Thomas McCormack, of St. Paul, left New York ten days ago, on the "Reliance," for several months' study in Europe.

Dr. E. R. Woodworth, superintendent of the State Tuberculosis Sanatorium at Custer, S. D., announces the appointment of Dr. Floyd Caslett, formerly of Texas, as assistant in the work at Custer.

The *Minneapolis Journal* is publishing a series of short articles on "A Greater Minnesota," two of which have been written by physicians, Dr. W. J. Mayo, of Rochester, and Dr. E. P. Lyon, Dean of the University Medical School.

The annual meeting of St. Paul Clinic Week will be held in St. Paul on January 9 to 12, inclusive, and the plan of former meetings will be carried out, that is, there will be clinics each morning and a symposium each afternoon.

Work is progressing on the 18-room addition to the Sprague Hospital conducted by the Huron (S. D.) Clinic. The new Clinic is greatly encouraged by the work done by it since its organization.

Drs. C. C. Kennedy, A. E. Johnson, and Charles E. Drake, of the staff, and William Mills, superintendent of the Swedish Hospital of Minneapolis, went to Cleveland, Ohio, last month to inspect hospitals and hospital work done in that city.

Dr. J. C. Michael, who has been chief Neuro-Psychiatrist for District 10, of the Government office concerned with the welfare and rehabilitation of ex-service men of Minnesota, North Dakota, South Dakota, and Montana, resigned that position on November 1.

The State Sanitary Conference, which met in St. Paul Last month, elected the following officers for the current year: President, Dr. George S. Wattam, of Warren; vice-president, Dr. O. W. Parker, Ely; secretary, Dr. A. J. Chesley, of the Minnesota State Board of Health.

Dr. Nicholas L. Linneman, of Duluth, died on October 29, at the age of 47. Dr. Linneman was a graduate of the medical school of the University of Minnesota, class of '02. His death was traceable to influenza contracted while in service in the medical corps at Fort Riley, Kan.

Dr. B. F. Simon, City Health Officer of St. Paul, is urging the physicians of that city to inoculate against diphtheria. The city will do the work without charge when requested to do so. This is not a precaution against a threatened spread of the disease, but is a modern health measure.

Dr. Edmund L. Maurer, of Brownton, died last month at the age of 44. Dr. Maurer was a graduate of the Medical School of the University of Minnesota, class of '04. He practiced a short time in Blackduck and Clara City, but soon moved to Brownton, where he became a useful citizen and a highly esteemed physician.

Surely one servant is not without honor in his home. On October 19th the citizens of Montrose gathered together to celebrate the twenty-first anniversary of the arrival of Dr. E. P. Hawkins in that city for the practice of medicine. The good-will of the whole community was expressed in the large gathering, and a handsome present was given to Dr. and Mrs. Hawkins.

The Kahler Corporation of Rochester, affiliated with the Mayo Clinic, is to open a dietetic restaurant to furnish meals upon prescriptions. The restaurant will accommodate sixty patients, and the charge for three meals will be $2.00. The restaurant will be under the charge of Miss Mary A. Foley, a real expert in the work. The significance of this movement can scarcely be exaggerated.

Dr. C. L. Scofield, of Benson, was re-elected president of the Minnesota Public Health Association at its annual meeting in St. Paul last month, and Dr. A. J. Stowe, of Rush City, was elected secretary. The sale of Christmas Seals will be pushed vigorously this year, and the campaign will doubtless raise the largest amount of money ever received in the state in this way. The subject is treated in our editorial column.

Miss Bertha Erdmann, the first superintendent of nurses in the hospital of the Universty of Minnesota, died in the hospital on November 5. Miss Erdmann was also superintendent of nurses in the Minneapolis General Hosptal for a number of years, and she was the first superintendent of nurses in the Elliott Memorial Hospital. She will be affectionately remembered by hundreds of graduates of the Medical School of the University of Minnesota.

Dr. R. O. Beard, of the University Medical School, has written a review and critique of the Report of the Rockefeller Foundation's Survey of Nursing Education, and in the form of an address has delivered this, by invitation, before the annual meetings of the State Associations of Nurses and the State Leagues of Nursing Education of Iowa, Minnesota, and Missouri, during the past month. On November 15th he will address a joint session of the Western Hospital Association of Canada, the Manitoba Nurses' Association, the Manitoba Medical Association and the Manitoba Hospital Association, on the same subject.

Following the annual meeting of the Minnesota State Medical Association in Minneapolis last month, a Woman's Auxiliary to the Association was formed, and the following were elected officers of the organization: President, Mrs. H. B. Sweetser, Minneapolis; first vice-president, Mrs. H. P. Ritchie, St. Paul; second vice-president, Mrs. K. E. Bergquist, Duluth; third vice-president, Mrs. F. C. Rodda, Minneapolis; recording secretary, Mrs. Rood Taylor, Minneapolis; corresponding secretary, Mrs. Carl B. Drake, St. Paul; treasurer, Mrs. E. Z. Wanous, Minneapolis. The Auxiliary Societies of the Hennepin, Ramsey, and St. Louis County Societies will be affiliated with the State Auxiliary.

The Second Annual Clinic, given by the Mitchell Physicians and Surgeons, will be held at Mitchell, South Dakota, Tuesday and Wednesday, December fifth and sixth, 1922. The following physicians outside the state will present papers: Dr. George Douglas Head, Minneapolis, Minn.; Dr. N. O. Ramstad, Bismarck, N. D.; Dr. J. E. Summers, Omaha, Neb.; Dr. Newell Jones, Omaha, Neb.; Dr. James M. Patton, Omaha, Neb.; Dr. B. F. Lounsbury, Chicago, Ill.; Dr. Arthur Steindler, Iowa City, Iowa; Dr. Harry Bowing, Rochester, Minn. The usual banquet will begin Tuesday evening. Final programs will be found at Headquarters, Tuesday morning, December the fifth.

The next meeting of the Southern Minnesota Medical Association will be held in Mankato on December 4th and 5th. The papers have been selected with a view to making the program of as much interest to the general practitioner as possible, and the material has been so concentrated that the entire program can be attended within the limits of one day. The meeting will commence promptly at 1:30 P. M. on Monday, December 4th. The banquet will be given at 6:30, and will be followed by the evening program. The program will be resumed on the following morning at 8:30, and will close at noon with a luncheon given by the physicians of Mankato. Four guests from outside the state will be speakers on the evening program: Dr. Clifford G. Grulee, of Chicago; Drs. Arthur Steindler and Howard L. Beye, of Iowa; and Dr. V. J. LaRose, of Bismarck, North Dakota. Dr. C. C. Pratt, of Mankato, has been selected as Chairman of the Entertainment Committee, and Dr. A. F. Kemp, also of Mankato, is Chairman of the Committee on Arrangements. Applications for hotel reservations should be made at once through Dr. Kemp. The headquarters will be at the Hotel Spalding, as before.

PHYSICIAN WANTED

One who is not inclined to do major surgery to locate about thirteen miles away in neighboring town of about 1,000 (competition light), with the idea of co-operating with a surgeon who has an up-to-date hospital. May be called on to give anesthetics and assist in major surgery. Address 297, care of this office.

PRACTICE FOR SALE IN NORTH DAKOTA

An unopposed practice in a town of 350 population, two churches, a splendid school, and splendid people. Reason for selling, poor health. Address 300, care of this office.

PRACTICE FOR SALE

An excellent general practice goes to the purchaser of my office equipment, drugs, etc. In best part of South Dakota. Population, 700. One other physician. Competition is ethical and congenial. Your personality and physical ability determine how much you will do. Reason for selling, have accepted supervision of small rural hospital in same state. Purchase of property is optional. Investment required is $1,000. If looking for a good location of this kind, come and take it, I do not care for any correspondence as I am sure this will go quickly. Dr. G. A. Lierle, Spencer, South Dakota.

PART OF MINNEAPOLIS OFFICE TO RENT

Will sublet a room in the LaSalle Building, Minneapolis, 7x13 ft., to a physician, with joint use of reception room and services of office secretary. Telephone Main 8541.

SOUTH DAKOTA PRACTICE FOR SALE

A $6,000 practice in modern town of 1,200 in eastern South Dakota, one other physician. Practice can be increased by surgery. Must be sold at once, will sell at your own price and terms. Will stand investigation. Going to specialize. Address 289, care this office.

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Best transient office in city. Downtown, easily accessible, excellent space, well arranged, finely furnished, complete equipment, no competition. Located on a busy corner; and a $500 per month cash business can be done from the start. For a physician who wishes to locate in the city and make more than a living from the start this office and practice cannot be beat. Present lessee has entered government service. Will sell or lease all or part of furniture and equipment. Address 285, care of this office.

POSITION WANTED BY PHYSICIAN

A salaried position or association with an established internist or surgeon is wanted by a physician, aged 35, graduate of a Class A school, hospital experience. Speaks German, and is licensed in Michigan, Minnesota, and North Dakota. Address Box 241, Taylor, North Dakota.

OFFICE POSITION WANTED

A woman thoroughly equipped for secretarial work and with large experience with physicians requiring accuracy, desires a position in the Twin Cities. Is capable of editing papers taken by dictation. The best of references given. Address 296, care of this office.

MINNEAPOLIS OFFICE FOR RENT

Very desirable suite of offices, suitable for physician or dentist, sharing reception room with another physician. Inquire Dr. Ernest Z. Wanous, 408 Masonic Temple, Minneapolis.

POSITION WANTED

Registered nurse with experience as anesthetist wishes position in dentist's or physician's office. Will go out of city. Best of references. Address 293 at this office.

SURGICAL NURSE WANTS POSITION

A surgical nurse with two years' experience in a city office, aged 29, desires position with up-to-date physician as office assistant. Experienced anesthetist; can do bookkeeping, laboratory work, etc.; until recently superintendent of a hospital near the Twin Cities. Best of references. Salary moderate if associations are congenial. Address 286, care of this office.

WANTED

Woman physician, graduate of the Woman's Medical College of Philadelphia. One years experience as interne in Philadelphia hospital and three months practice, also in hospital, desires location in Minneapolis, either sharing office or as assistant to Doctor. Best of references. Address 301, care this office.

PRACTICE FOR SALE

In a village of 700 about 70 miles from the Twin Cities, unopposed, wealthy community. City water, electric lights, etc., fine school, largely German community. Business over $6,000; can be increased to $10,000 by doing some surgery. Residence for sale; no charge for practice, leaving state. Address 102, care of this office.

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CHRONIC DUODENAL OBSTRUCTION: ETIOLOGY, SYMPTOMS, AND TREATMENT*

By E. P. QUAIN, M.D.
BISMARCK, NORTH DAKOTA

The possibility of chronic obstruction of the duodenum at the point of junction with the jejunum has been given almost no consideration by the numerous writers on visceroptosis and intestinal stasis until within the last few years. It is, nevertheless, certain that there are very many individuals who suffer chronic disorders, both physical and mental, from this pathologic cause. Depending on the degree of obstruction and its persistency, the symptoms vary in severity from intermittent mild attacks of headache, nausea, and vomiting to a constant inability to partake of any food without causing distress. The symptoms simulate duodenal or gastric ulcer in some cases, while in others they resemble those of cholecystitis and appendicitis. That mistaken diagnosis of the condition has led to surgical operations for assumed trouble in appendix, gall-bladder, duodenum, or stomach, we know both from observation and from personal experience.

The most common symptoms of this type of duodenal obstruction are a chronic epigastric distress, varying in time and duration, but usually most intense two or three hours after meals; nausea and emesis, often of unusually large amounts of material, including bile; constipation; and periodic attacks of vertigo and headache. All symptoms disappear for a time after a copious bile emesis. These symptoms are not constant except in the more aggravated cases. As a rule they come in spells with intervening periods of practically normal digestive functions. During the attack the patient may be compelled to stay in bed for a day or two, more because of the head symptoms than because of the abdominal disturbance. Certain foods and modes of living predispose to the attack. In one word, the history and symptomatology of each recurrence in the milder cases correspond exactly to the classic conception of the term "bilious attack."

When the first individuals of the human species began to walk in the upright position, several of our internal organs were obliged to change their position because of the force of gravity. Those abdominal organs which were but loosely attached to the parietes by mesenteries gravitated downward as far as their mesenteric anchorage would permit.

The main supporting tissues or skeleton, of the intestinal mesenteries, are the blood vessels. Between the blood vessels is a loose areolar tissue, which is normally packed full of fat, thus giving considerable thickness and stability to the structure. But when the mesenteric fat for some reason, congenital or acquired, is reduced to a minimum, the arteries are plainly seen as a succession of branching cords which hold the various segments of the intestine in place. When the body is prone, as is the case of the quadruped, the intestinal tube rests against the ventral abdominal wall and requires a mesentery of only limited width. If this same individual be placed upright the intestines sink naturally toward the pelvis and a wider and longer mesentery is necessary or the entire weight of the organs must be supported by the mesentery, that is, by the blood vessels of the mesentery. That the mesentery of the small intestine actually is too short to permit the mass of intestines to rest against the floor of the abdomen in many individuals is an anatomic fact established long ago. That this mesenteric shortcoming is capable of producing serious pathologic results is a fact not understood until recently.

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*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

The superior mesenteric artery leaves the aorta at the level of the second lumbar vertebra and passes downward at an acute angle. The duodenum passes between the aorta and superior mesenteric artery at the apex of this angle, and becomes the jejunum on the left side of this point. When the jejunal and ileac mesentery is long enough so that no special dragging is exerted on the superior mesenteric artery the angle of the artery is less acute and causes but little pressure on the duodenum. There is, however, in nearly every individual an appreciable narrowing of the intestinal lumen at the duodenojejunal junction, and this narrowing is caused chiefly by the limitation of space between the aorta and the superior mesenteric artery. When, on the other hand, the mesentery is too short and therefore compelled to support the entire weight of the small intestine and its contents, then the superior mesenteric artery is put on a downward stretch and causes a compression of the duodenum, which is in excess of normal.

When an abdominal organ has failed to become properly attached to its normal position during embryonic development and when this organ, therefore, begins to cause an irritation to contiguous structures, an abnormal, or adventitious, fibrous tissue develops at the points of stress. It seems to be Nature's way of improving on a bad job. This would explain the fact that in those cases where the superior mesenteric artery interferes with the duodenal emptying function, for the reason stated, there will also be found, usually, a mass of abnormal membranous connective tissue at the duodenojejunal junction. Its original purpose seems to be to hold up the upper segment of the jejunum and thus to relieve the constriction on the bowel. But the ingrowth of connective tissue is apt to be overdone and a later result is that this membrane helps to cause an already threatened obstruction.

There is yet another cause for chronic obstruction of the duodenum. Many individuals are born with a freely movable right colon. In such cases we find that the cecum, ascending colon, and hepatic flexure have not become firmly fixed to the posterior abdominal wall, but are hanging by a mesentery. The root of this mesentery supports the weight of the right colon, and is attached above the duodenum with the colica media artery as the chief supporting structure. Duval has demonstrated, both anatomically and surgically, that this artery does at times, under the condition mentioned, become so tightly drawn across the front of the third portion of the duodenum that obstruction and dilatation are produced.

One of the chief causes for right-sided coloptosis is undoubtedly the fact that the entire fetal mesentery is too short, which prevents the ascending colon and hepatic flexure from reaching their normal locations. In such cases there is an opportunity for both of the factors mentioned—compression by the superior mesenteric artery and colonic drag—to become causes for duodenal obstruction in the same individual. This is the conclusion reached by Duval, who is no doubt the most experienced authority on this subject.

In the milder cases with infrequent attacks, the pylorus retains its normal tonicity against a moderate distension of the duodenum, but relaxes and permits regurgitation when the obstruction causes the duodenal contents to become excessive in amount or specially irritating in character. In the more chronic and aggravated cases the pylorus has lost its function of controller between stomach and duodenum, and the dilatation extends to and involves the stomach. This is shown by the character of the symptoms which then change from a periodic to a more or less constant condition of nausea, anorexia, eructations, and frequent bile emesis. We have found the entire duodenum dilated and the pylorus open and increased in diameter to twice its normal size in several patients on whom we have operated. In such cases considerable emaciation has taken place, and the patient is constantly in poor health. From the misery and continuous brooding over his ailment the patient becomes a neurasthenic wreck with his mind full of fixed ideas, reasonable and unreasonable, about his condition. From a careful notation of all references to the subject of indigestion and dyspepsia, gathered from repeated cross-examinations of his numerous medical advisors and from medical literature, real and fake, his conversation teems with a mixture of scientific terminology and silly notions. It is extremely difficult to obtain reliable clinical history from this maze of perverted imagination.

Since the condition is congenital it is often possible to trace the beginning of the "bilious attacks" to early childhood. Rarely have we found the first indications appear suddenly after adolescence. Visceroptosis in general, including coloptosis, is much more frequent in the female than in the male. Chronic duodenal obstruction is three times more common in women in the experience of Duval. However, in our clinic there have been as many men as women suffering from the more advanced stages of the disease.

A positive diagnosis of duodenal obstruction can be made only by means of the *x*-ray. In the presence of a patient of the visceroptotic type, complaining of the symptoms mentioned briefly above, we should remember this lesion as a possibility by no means a rarity. In the examination it is sometimes difficult to make out the exact location and conformity of the third portion of the duodenum. The stomach is usually ptosed, and after it is filled with the barium mixture it conceals the duodenum in the anteroposterior aspect. Turning the patient sideways gives a better opportunity to visualize this part of the duodenum. When the superior mesenteric artery is the cause of the obstruction and dilatation the duodenum is apt to become dislodged downward, sometimes pushing itself into a pocket behind the peritoneum, which pocket may reach to the brim of the pelvis, and sometimes bulging into the peritoneal cavity as a freely movable pouch protruding through the wound after a mid-abdominal incision. When the point of obstruction is located toward the second portion of the duodenum, that is, when it is produced by the colica media artery, the duodenal dilatation is more likely to be above the transverse mesocolon, and is then more easily visualized to the right of the stomach.

Gastric, as well as duodenal, residue of a barium meal after six hours is seen in the more aggravated cases. Each bolus of the barium meal leaving the duodenal cap passes normally through the entire duodenum in a few seconds. If the passage is delayed so that the second and third portions are constantly visible during the emptying of the stomach, it means an abnormality. When this is found in conjunction with the symptoms described we may know that there is an interference with the emptying of the duodenum. Further *x*-ray observations will usually prove or disprove the presence of ulcer, ptosis and dilatations.

The milder cases of periodic symptoms from duodenal obstruction are managed with fair success by teaching the patient to assume the knee-chest or Trendelenburg posture whenever the obstructive symptoms appear. He may be required to lie down with the lower abdomen elevated for one-half hour or an hour after each meal until the attack is over. In more troublesome cases the patient will learn the advantage of the recumbent position after meals for a considerable period of time. The inverted posture causes all the abdominal viscera to gravitate toward the stomach, and all weight and drag across the duodenum is temporarily removed. If this is practiced every time the duodenum is called into its most active service it will have a chance to regain its tone after a time, and serious damage to the duodenal walls may be obviated.

If the dilatation already is of advanced degree, and surgical operation is to be avoided, it becomes necessary that the patient stay in bed for a few weeks. During this time several hours of each day is spent in the Trendelenburg posture. All patients with a tendency to duodenal obstruction, with or without right coloptosis, should be instructed to wear a pad properly adjusted over the lower abdomen. The pad must be made to fit the patient and applied with a corset or binder while in the Trendelenburg posture. The object is to press the lower segments of the abdominal muscles deeply into the pelvis so that the lower abdomen may thus become materially reduced in capacity and the ptosed organs, therefore, be obliged to find a higher resting place. This is much easier of accomplishment in the average female than in the male, who usually has strongly developed abdominal muscles and whose occupation often precludes the necessary rest. That the properly adjusted pad gives desired relief to patients afflicted with both right coloptosis and evidence of duodenal obstruction is attested by many who wear it daily as part of their necessary equipment for comfort.

When it becomes advisable to resort to surgical operation for the relief of the disease, a thorough examination of all organs in the upper abdomen must be made after incision. The condition of the stomach, pylorus, gall-bladder, and the first and second portions of the duodenum must be ascertained. The situation of the right colon is of very great importance. In many cases, perhaps in the majority, it will be found that when a ptosed right colon is properly affixed to the right flank the evident cause of the obstruction is removed by taking the weight off the transverse mesocolon. In others it will be found that the hepatic flexure is already fixed fairly high so that the colonic drag across the duodenum, therefore, can not be great. If the duodenal dilatation at the same time extends to the junction with the jejunum it is almost a certainty that no form of treatment will give the relief which follows a duodenojejunostomy.

This short-circuiting operation is made on the left side of the prominent, dilated, and descended third portion of the duodenum. Since the ptosed duodenum usually slides about somewhat freely under the peritoneum, it is necessary first to incise the peritoneum and to withdraw a section of the organ. The right colic artery and one or more large veins pass obliquely to the right at this point, and care must be exercised that they be not damaged. A number of large soft lymph glands may be noted close to the vessels. These should be molested as little as possible. If the duodenal wall has become definitely infected, a condition present in the very chronic cases, areas may be found where the peritoneum has become firmly adherent to the thickened duodenum. With such findings the possibility of wound infection must be borne in mind, and application of alcohol or tincture of iodine to the suspected and incised surfaces is advisable. The jejunal loop selected should be the highest segment which will reach to the point of anastomosis without tension. In some cases we have found the jejunum abnormally diminished in diameter, a proof of its decreasing amount of exercise. The anastomosis is made on the same plan as a gastro-enterostomy. It is more easily made because the duodenum has a much thinner wall and contains fewer blood vessels than the stomach. When the duodenum is opened it will be found to contain considerable bile and, especially in the more chronic and advanced cases, a quantity of gas. The opening into each loop should be at least 3 cm. long, and in the presence of great dilatation 2 or 3 cm. longer. The anastomosis is made with two rows of tannic or chromic catgut, the outer taking in merely the outer muscular coats and the inner all the layers. We make the latter with a running interlocking suture, for which we have a specially constructed needle. Lastly, the free and retracted peritoneal margin is attached to the suture line, and the small opening between the duodenum and jejunum above the anastomosis is closed.

When the obstruction is confined to the second portion of the duodenum, that is, when it is caused by coloptosis, the dilatation does not extend below the mesocolon, but the abnormal bulging of the duodenum can usually be plainly seen through this structure after the transverse colon has been raised. Our experience has indicated that most patients with this form of duodenal obstruction are relieved from the symptoms by making a complete colofixation by the method described by me elsewhere. If it is evident that the colofixation does not lift the weight of the colon efficiently from the duodenum, a transmesocolic anastomosis should be made between the jejunum and the second portion of the duodenum to the right of the colica media artery. Duval recommends making the anastomosis entirely above the transverse mesocolon by pulling the jejunal loop through an incision in the mesocolon. The anastomosis is then supplemented by a submesocolic jejunojejunal short-circuit. The three anastomoses we have performed on the second portion of the duodenum were made before the appearance of Duval's article on the subject. We followed the same technic already described for anastomosis on the third portion of the duodenum, treating the mesocolon exactly as the posterior peritoneum was treated in this technic. It is our belief that Duval's is the better method, although we have not as yet employed it.

The results following the medical forms of treatment will vary with the co-operation of the patient and with the type of obstruction present. Unless the patient is able to understand the reason for the strict regime and to apply the treatment as directed, the result will be desultory. Symptoms from obstruction at the duodenojejunal junction due to an abnormally short ileac mesentery are temporarily relieved by the Trendelenburg posture after meals; but no form of pad or other external apparatus can be devised to effectively hold up the small intestine when the patient stands up. The erect posture will cause the ileac loops to sink as low as the mesentery permits, or until they rest against some support on the floor of the abdominal cavity. In these cases duodenojejunostomy is definitely indicated.

Successful treatment for this lesion in either of its forms is particularly gratifying because it concerns a class of patients who are the most difficult to understand and to treat. It deals with those miserable victims who go from physician to physician, and from hospital to hospital, year after year, with the pseudoscientific diagnosis of "neurasthenia" written all over them. We have proofs that many chronic "neurasthenics" may be restored to mental and physical equilibrium by putting into practice the theory that coloptosis and duodenal obstruction is one great cause of "neurasthenia" in the usual acceptance of this term.

We have made, in all, 16 duodenojejunostomies for the disease in question, the first 5 of which were reported in the *Annals of Surgery* for November, 1920. Five of the operations were made in conjunction with right colofixation. We have post-operative information from 14 of the patients. There was no operative fatality. The lack of improvement in 2 patients may reasonably be ascribed to massive adhesions following previous multiple laparotomies. Two patients in whom a demonstrated and markedly ptosed colon was not fixed are still having epigastric and other symptoms. Three others report that they are much improved from their former digestive troubles, but that they still have mild attacks of nausea and inability to eat large meals without causing some distress. All 3 have gained several pounds in weight. One patient had polycystic kidneys, discovered during the operation. Duodenojejunostomy was, nevertheless, done because of a marked prolapse and distension. The previous nausea, anorexia, and periodic bile emesis were relieved by the operation, but the patient is now suffering from the kidney lesion. Among the 6 who state that they are entirely cured from their symptoms are the 3 patients of the series who had the most pronounced evidence of obstruction at the duodenojejunal junction.

Total failure to give relief in 28.5 per cent of the patients and failure to cure entirely an equal number may at first glance seem discouraging for the future reputation of this operation; but after a closer study of the situation one must admit that no other form of treatment known promises more than a fraction of the successful results here related. Nearly 50 per cent of the patients who had been chronic invalids were taken entirely from the sick list, and others were improved sufficiently to resume their proper positions in the affairs of life. It is confidently believed that with the experience gained and with a fuller understanding of the causes which underlie chronic duodenal obstruction, its future treatment, both medical and surgical, will become more successful.

DISCUSSION

Dr. Fred Ewing (Kenmare): It was my privilege to see Dr. Quain do one of these operations last summer and also to see the end-results on some of the patients, and it was an eye-opener to me. It did not seem to me, in thinking of the subject, that there was enough pathology there, but when I saw the condition at the time of operation it showed that there was enough pathology to warrant operation, and the end-results were certainly fine.

I think we should congratulate Dr. Quain on this splendid piece of new work he is doing.

SOME PRACTICAL SUGGESTIONS IN THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOUS*

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Many times the practitioner has been criticised unjustly by lung specialists and internists for his deficient knowledge of tuberculosis. Anyone experienced with pulmonary tuberculosis must realize that some cases are not early clinically for more than a few days or weeks, and others manifest only when the disease has progressed to an advanced pathological state. The family physician is then censored for being unable to do the impossible, to discover the hidden spring long before it reaches the consultant, who with expensive equipment and a hospital staff readily makes a diagnosis. We are in less need of the clinician well versed in laboratory methods than of the family physician, who first sees the majority of the actual or suspected cases and who shows sufficient interest toward such a common and uninteresting disease as pulmonary tuberculosis to learn to make a reasonably early diagnosis and to apply the correct methods of treatment.

At the present time there is a tendency by a few to use hair-splitting methods to detect the slightest lung changes of old burnt-out lesions and then to apply the incorrect treatment of active therapeutic measures when only observation and a God-fearing life are necessary. A noted surgeon recently said, "In my student days less reliance was placed on the stethoscope, that romantic instrument which is the diagnostic sheet-anchor of so many men who do not attend the revelation at the operating-table or at post-mortem." Virchow, in all his pathological and post-mortem wisdom, failed to recognize what Laennec crystallized into a distinct clinical entity by means of this "diagnostic sheet-anchor," his wooden trumpet. May more diagnosticians become skilled in its use that fewer patients may require operation and post-mortem! Standards of diagnosis and treatment are gradually developing that make for uniformity. This paper does not boast a comprehensive discussion of these subjects, but an attempt to single out certain of their phases that may be of practical interest to you.

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The diagnosis of pulmonary tuberculosis becomes more difficult as standards are raised. Our old idea that a few fine râles or dullness at an apex with cough and expectoration justified a diagnosis of active disease received a series of set-backs when the various tuberculin tests, the Röntgen ray, and the importance of certain symptoms were recognized.

The examination of large numbers of men during the World War emphasized the prevalence of extensive infectious and pathological processes[1] in the lungs capable of great physical strain on the one hand, and chronic tuberculosis which became suddenly active and serious on the other. Who among you has not observed tuberculous patients whose feelings contradict the stage of their disease as classified by their physical findings and the *x*-ray: the patient with extensive involvement of the lungs who does not appear to be sick and whose disease seems of little moment; and, again, the one with a small lesion who is extremely toxic and whose disease progresses to a rapid invasion and death?

Accepting the facts that tuberculosis is practically a universal infection at maturity and that a pathological process may exist for years without clinical manifestations, the diagnosis of tuberculosis resolves itself into one of determining clinical activity. The latter has been defined by Brown[2] and others as "that state in pulmonary tuberculosis in which pathological activity is not latent, but is producing through the actual and immediate absorption of poisons certain clinical or laboratory manifestations of disease, which disease may in turn be progressing, stationary, or even for the time being retrogressing." The character of the focus, therefore, is of much greater importance than its extent.

There are two main groups of pulmonary lesions that occur with about equal frequency—the parenchymatous and the peribronchial. The former involving the lung parenchyma is by far the more serious clinically, the latter is considered an infection involving the lymph channels and nodes distributed along the vessels and bronchi. The two can be distinguished by the *x*-ray, but in the more serious or parenchymatous lesions, tubercle bacilli occur much more frequently and in larger numbers. Blood-spitting also occurs about nine times as frequently in the parenchymatous as in the peribronchial, and moderately coarse râles distinguish the former. Approximately 50 per cent of my tuberculous patients are advanced when they present themselves for examination, so that the diagnosis is relatively simple, but the treatment is more complex. It is with the other half that one is concerned if clinical tuberculosis exists and if it is active or potentially active.

In the anamnesis one must consider the factors that broke down the barriers of a healed focus or produced a fresh reinfection. The habits, living or housing conditions, history of exposure to a tuberculous environment, nutrition, overwork and strain, the condition of the upper respiratory passages, etc., play a vital part in activating the disease. Forty to 60 per cent of tuberculous patients give a definite history of exposure to the disease in the immediate family or of living where debilitating conditions favor the development of a former infection. This may come from either bovine or human sources.

The Saranac Lake observers[3] have attempted to divide the symptoms, in relation to activity into two groups: "(1) Cardinal symptoms, including hemoptysis, pleurisy, fever, rapid pulse, lack of endurance, loss of weight, and night sweats; and (2) subsidiary symptoms, including chills, cough, and expectoration." They do not consider the presence of tubercle bacilli in the sputum evidence of clinical activity, but they have observed that in those patients whose sputum has been positive, relapse is more likely to occur; that only about one-half of the cases with positive sputum and râles prove clinically active, although, if bacilli are present, clinical activity is three times as likely to occur when accompanied by râles; that, if the sputum remains negative, clinical activity results in only about one-fifth of the cases, whether râles are present or not; and that whether bacilli are present or not does not affect the number of clinically active cases with no râles. It is advisable to examine any expectoration at once for bacilli. Sputum is not necessarily present, but constant or occasional morning expectoration, with or without cough, should have attention. Clinical activity does not seem to vary much, whether sputum is present or absent or whether it is accompanied by râles or not. Absence of bacilli after one or several examinations is not proof against the presence of active disease. It means only that there is no bronchial ulceration. In children, if sputum cannot be obtained, the stools should be examined. An open lesion is more dangerous than a closed one. In such a lesion there is less chance of the focus being inactive. Heise's[4] studies of 1,400 relatively early cases whose fate was known ten to nineteen years after discharge, showed that those with positive sputum had a 22 per cent less chance than those whose sputum was negative. The number, length, morphology, or clumping of bacilli by ordinary examination does not give us any more information as to pathological activity than their mere presence does. Blood counts are of no value in determining pathological activity. The agglutination of tubercle bacilli is influenced by slight changes of hydrogen ion concentration so that so far this test has not been of value in determining activity.

Of the general symptoms, fever is the most important initial one and is of almost constant occurrence in the early stages when tubercles are forming. In adults a slight but persistent rise in temperature over 99.4 F. taken by mouth for five minutes at least four times daily constitutes fever. A pulse rate of 90 to 100 is abnormal unless other factors, such as endocarditis, hyperthyroidism, sinus infection, pyorrhea, etc., can not be excluded.

An unexplained loss in weight to 5 per cent below normal for a period of four to six months is common in early active tuberculosis. A patient who develops tuberculosis usually is about ten pounds underweight. Lack of endurance or undue fatigue often accompanies this weight loss. In children failure to gain in weight for four months or longer without definite cause is suspicious; and lack of staying power, which is unusual for the individual child, that cannot be satisfactorily explained, warrants thorough investigation.

Sweating is present in a high percentage of the active cases and may occur early in the disease. The sweats usually come on at night after the drop in temperature, but sometimes in the day if the patient sleeps.

To summarize: fever, rapid pulse, loss of weight and strength, and night sweats suggest the disease; but, if there is no more evidence than these symptoms present, one cannot make an absolute diagnosis of tuberculosis. To do this one or more of the following diagnostic essentials must be present: tubercle bacilli in the sputum, confirmed by at least two examinations; persistent moderately coarse râles in the upper chest; a parenchymatous lesion as shown by the *x*-ray, which is of more value if in the upper chest; a history of definite hemoptysis; a pleurisy, which is more weighty if with an effusion and a positive complement fixation test. At the present time the last named is not practical and is available only in the best-equipped institutions. A frank hemoptysis means a drachm or more of blood, and it is more serious if followed by streaked sputum for a day or two. Streaked sputum occurs frequently in acute bronchitis, and large amounts may be coughed up in pulmonary abscess and, less frequently, in bronchiectasis. Blood streaks, however, in the absence of these other indications, should be looked upon as one of the green lights of warning preceding the red light of danger.

Of the diagnostic signs, râles rank next to the presence of tubercle bacilli in importance. Râles of every description may occur and often do,—crepitant, fine, moderately coarse, coarse, sonorous or sibilant rhonchi, but the râles usually present in incipient tuberculosis is a medium or moderately coarse râle, moist or viscid, most always in showers, and generally heard during a rapid full inspiration following a light cough. If not heard by this procedure they are sometimes brought out by having the patient exhale, then cough and inhale rapidly and fully. The râle depends for resonancy or dullness upon the amount of consolidation between the bronchiole or bronchus and the chest wall. To be significant the râle must occur in the upper part of the lung, and must persist on several examinations. These apical râles are of mort importance when heard posteriorily to the third vertebral spine than when heard above the clavicle and the first intercostal space. However, fairly extensive central lesions may occur without any signs or with very indefinite ones. Tubercle bacilli may even be found in the sputum in the absence of physical signs. In such cases symptoms may determine the diagnosis.

Summary

A. Tuberculosis suggested.
  Fever.
  Rapid pulse.
  Loss of weight and strength.
  Sweats.
B. Tuberculosis suspected.
  History of pleurisy with effusion.
  Hemoptysis.
    Not explained by other causes.
C. Tuberculosis diagnosed.
  1. Bacilli in sputum
    or
  2. Moderately coarse râles persisting at an apex (especially posterior).
    X-ray showing parenchymatous lesion, especially in upper part (more valuable if both are present).
    History of pleurisy with effusion and hemoptysis not explained by other causes.
  3. Symptoms A and any two items in C2.

Deep-seated lesions may give very indefinite signs until there is an extension of disease to the surface of the lung when râles suddenly appear in some unusual place and spread rapidly over the whole lung. You have probably noticed how common in right apical lesions, typical râles are heard in the outer fourth and fifth interspaces on the left, caused by a deep-seated bronchogenic spread to that side. The x-ray reveals these basal lesions earliest. Râles heard over the base of one or both lungs should never be considered due to tuberculosis unless the sputum is positive. Râles over the middle zone of the chest in the absence of râles over the upper third should be suspicious of tuberculosis. Râles heard over the upper lung fields on quiet respiration indicate that the lesion has passed beyond the incipient stage.

There are other signs of less significance that should be carefully noted. L. Brown[5] describes them as granular breathing, the type "which seems about to break up into râles, which suggests that with a cough râles will be plainly evident (when possibly they may not occur), distant breathing at the right apex, prolonged expiration, possibly high pitched at the right apex, or high-pitched inspiration with some roughening or accentuation at the left apex." There may be retraction over the apex on the side of an old lesion, whether fresh tubercle exists or not, and lagging over the same areas with recent disease. The movements of the ribs and diaphragm are of lesser importance.

When the Röntgen ray is available it is of inestimable value in the diagnosis of those cases with suspicious symptoms or signs. The x-ray usually reveals much more disease than the physical signs show. This is readily understood when one considers that only surface lesions show physical signs. It furnishes help in determining the stage of disease, and, although it does not prove clinical activity, it reveals and localizes pathological changes sometimes when not detected by other means. Certainly, negative plates in the presence of suspicious symptoms are very valuable. If plates are to be of diagnostic value also they must be made by a radiographer who can take them properly and read them correctly. Too many physicians are installing inferior x-ray equipment and, in attempting to read their own plates, arriving at faulty conclusions that are untenable. In my experience not infrequently people have been sent to sanatoria needlessly or started on the unhappy road to neurasthenia by the x-ray diagnosis of pulmonary tuberculosis in the absence of sufficient symtoms or physical signs when what they needed were close observation and warning.

The fluoroscope is of no value in diagnosing minimal or early lesions. It shows the rough sketch of a gross pathological process which many times is all that is needed. It gives the movements of the chest wall and the diaphragm, reveals fluid, and is almost essential when using artificial pneumothorax to determine the actual amount of lung collapse.

Tuberculin Tests.—Practically all adults respond to the intradermic test that indicates a tuberculous infection, which is of no importance clinically. With the advent of the x-ray, subcutaneous tuberculin tests have become progressively less frequent. It is now mostly limited to sanatoriums and diagnostic centers where occasionally the symptoms and physical signs, as well as the x-ray, are equivocal. In private practice it should be done only after the patient has been thoroughly studied, after stereoplates, if at all possible, have been taken and after having received a "doubtful diagnosis" by a man skilled in lung diagnosis. If a patient reacts to a subcutaneous dose of tuberculin and has no persistent moderately coarse râles in the upper chest, no parenchymatous Röntgen ray changes, no history of hemoptysis or pleurisy with fluid, he is considered as having "suspected tuberculosis." If the above data are not all available, and all the others are negative, including failure to react to a second subcutaneous dose of 10 mg. of old tuberculin, the diagnosis of tuberculosis is unwarranted. For details in technic, dosage, etc., of the subcutaneous test, I would refer you to Brown's and Heise's article.[6]

The determination of the vital capacity and physical fitness, according to Dreyer's directions and formulæ, was first applied in this country to pulmonary tuberculosis by the writer, and the results published in a preliminary report in collaboration with Dr. J. A. Myers and Dr. F. L. Jennings. As a test for the individual case where the history, physical signs, and *x*-ray have been carefully applied it seems to bear a direct relationship to the seriousness of the functional handicap produced by the disease irrespective of the extent of the lesions. When correlated with the other clinical data it would seem to be of value to determine in a given case of pulmonary tuberculosis the progress of the disease, good or bad. The real value of vital capacity in tuberculosis will be determined only when it has been adopted by the diagnostic centers for tuberculosis.

In considering the needs of treatment, symptoms outweigh by far the physical findings in most cases. Once the diagnosis is made and vigorous treatment indicated, the first and most important step is to tell the patient at once that he has pulmonary tuberculosis. This may be depressing news and objectionable to relatives and friends, but it will prove the wisest course in the end. The chances for recovery are increased many times by the patient's hearty co-operation. It is not necessary at the start to overemphasize the difficulties that lie before him. Tuberculosis is a chronic disease. In all probability it was slow in developing so that repair and healing must likewise be so. L. Brown has pointed out that "the average duration of all fatal cases is between two and three years. The struggle for recovery lasts no shorter time, and if we include relapses or 'set backs,' as our patients call them, extends over a far longer period. In fact, I feel that with many patients the struggle lasts from diagnosis to death, which in at least 90 per cent of the patients at Trudeau has been caused by tuberculosis."

It is at this time that a tactful explanation and careful psychological handling of the patient means much. It is needless to state that a cheerful attitude is necessary at all times, but it should be tempered with firmness when insisting that instructions be obeyed.

The patient should be put to bed at once on a porch or in an open room. Dr. Trudeau used to say to his patients, "Open the window, go to bed, and don't worry." Then steps should be taken to acquaint the patient with the dangers of overexertion. Authorized books and literature on tuberculosis written for the patient should be placed in his hands and talks given him on every occasion. Simple printed instructions such as the following have been helpful in getting the patient started on a definite course.

INSTRUCTIONS FOR THE TUBERCULOUS

1. Rest one-half hour before and after meals.
2. Get a thermometer and learn to take the temperature and pulse.
3. Take the temperature and pulse before arising in the morning, or, if remaining in bed, at half-past seven in the morning and at four and eight in the evening. Keep a record and show to your physician at regular intervals.
4. Remain in bed except to go to the toilet for at least six weeks or until the temperature and pulse are normal and there is a gain in weight.
5. Before taking exercise by walking commence activities by going to the evening meal. If the temperature remains normal at eight in the evening, go to two meals and finally to all three. If there is a rise above normal it means that you are exceeding your exercise, and must remain in bed until it consistently remains normal for three days. Before walking exercises are commenced you should try to dress yourself, try sitting in a reclining chair out of doors as much as possible and going to meals. After doing this for several days without increase in cough or expectoration, and the temperature and pulse are normal, begin to take fifteen minutes' walk in the mid-forenoon. Return to bed or recline in chair and take temperature and pulse at once. Rest for one-half hour and take them again. If they are above normal at the end of the half-hour, it means that you are exceeding your exercise and doing harm to your lungs by continuing.
6. Never get tired or out of breath.

7. Weigh each week if possible when on exercise.
8. Between walking exercises remain in the open as much as the weather will permit.
9. Go to bed every afternoon after lunch until four o'clock.
10. Lunches consisting of a glass of milk, buttermilk, malted milk, and crackers, may be taken at half-past ten in the morning and four in the afternoon.
11. Rest the voice as much as possible, also the lungs, by avoiding long conversations. When the voice is hoarse and the throat sore whisper.
12. Be in bed with the lights out at nine in the evening.
13. Try to avoid crocheting, letter writing, and even reading for at least an hour after the noon meal.
14. Control the cough as much as possible.
15. Hold gauze or a paper napkin in front of the mouth when coughing. Place these in a paper bag, pinned to the mattress at the head of the bed, and burn each day.
16. Have individual dishes, which should be washed and scalded separately. Washing powder may be used in their wash water before scalding.
17. Do not rest with your head in the sun or sleep with the wind blowing over you.
18. Eat nourishing, easily digestible foods.
19. When not taking the temperature and pulse, forget your condition as much as possible.
20. Read, write, crochet, sew, etc., but never long enough to feel tired.
21. *Keep cheerful.* Remember that you are going to get well, but that it takes a long time to do so and that you cannot hurry along the cure except by following the rules of the game.

Patients without fever should remain in bed at least six weeks and longer, depending upon other symptoms and signs. Those with fever of 100° F. and over should be kept in bed entirely until the temperature consistently remains below 99° F. for several weeks or longer. Webb[8] and others have shown that in extensive disease of one lung with little or no recent involvement of the other having the patient lie almost continuously (better on a sand bag) on the affected side, has a beneficial effect.

Graduated exercises may be pushed more rapidly in the early afebrile cases after six weeks in bed, commencing with dressing and going to meals, then fifteen minutes' slow walk in the forenoon increased in a few days to the same amount in the afternoon. These walks are increased a quarter of an hour at a time, provided there is no increase in symptoms, until the patient is walking one hour a day, which is considered unlimited exercise. The majority of patients do not progress so rapidly. It may take months before the patient is moving about, and patients have been known to recover who have taken the cure faithfully two or three years or longer. I firmly believe, however, that there is a time during the patient's recovery when exercise is indicated and that, if he does not begin it then, he becomes weaker, his resistance and endurance become lowered, and the disease progresses. There is little danger of this occurring often because the vast majority of patients do not rest long enough.

Time will not permit one to dwell upon the value of sanatorium treatment, for nowhere will the regime of rest and exercise be carried out in a more systematic manner than at a sanatorium. As time goes on good institutional treatment is being made available, so that few who are really in earnest about trying to get well are refused an opportunity to take advantage of the sanatorium.

Our ideas about the food requirements in pulmonary tuberculosis have changed. McCann[9] has shown that forcing the protein intake to 90 gms. or higher produces fever, accelerates the pulse, increases pulmonary ventilation, and produces a rapid increase of physical signs in spite of a gain in weight. Philip Brown,[10] in a study of 700 tuberculous young women, states that there was a relatively bad prognosis in the obese cases. When we overfed our patients we had a wrong idea of the specific object of food. In strengthening and building up the recuperative powers of a patient suffering from the wear and tear of fever, increased food values are absolutely essential. Unfortunately, it is this type of patient who really needs it the most that craves it the least. Extra meat and milk are necessary until the patient has sufficient body protein. A judicious use of milk furnishes the necessary amount of fat soluble A, although cod-liver oil and butter fats contain large quantities. The water soluble B is practically always supplied in plenty. Dr. McCann recommends for the average patient at rest in bed a daily caloric intake of 2,500 to 2,750, the protein not to exceed 70 grams, the chief source being milk. It is preferable that the diet be divided into four or five meals. The non-protein part of the diet should be obtained from fat as much as the digestive ability will permit.

As early as 1840 George Bodington wrote, when describing the treatment of tuberculosis: "To live in and breathe freely the open air without being deterred by the wind or weather, is one important and essential remedy in arresting its progress." He was also an advocate of cold air. There are enthusiastic advocates for almost every known altitude and climate, and a consumptive can get well in all of them. The circulation of fresh air about the patient is beneficial in that it affects the whole body as much as any one organ, such as the lungs. Dr. Adolphus Knopf, the noted phthisiotherapist, sums up climate as follows: "There does not exist a specific, but there does exist an ideal, climate for tuberculosis, and it can be described in a very few words: where there is the least dust and most freedom from smoke and noxious vapors in the air; where the temperature and general atmospheric condition allow the patient to remain out doors the greatest number of days out of the year, and the greatest number of hours out of the day, with the greatest possible comfort and enjoyment—that is the ideal climate for the tuberculous invalid."

It is not possible to take time to more than mention the special forms of therapy, such as artificial pneumothorax, a procedure that has proved a God-send to us, for certain cases; tuberculin therapy with its indications and dangers; and heliotherapy, which is doing so much for the tuberculous complications of the pulmonary disease.

There seems to be considerable difference of opinion as to the management of the common complication, pleurisy with effusion. The individual case determines the course. If the patient is a strong tuberculous suspect or an early case where there is a relatively large amount of fluid causing distress, aspiration of practically all the fluid is indicated, air being substituted for one injection only in an attempt to prevent adhesions. If air is not given, the chest should be strapped. The patient should always be kept in bed until the signs and symptoms have subsided. If the patient is an advanced case with little disease in the opposite lung, there should be a period of delay for observation. If his symptoms become worse he should be aspirated, air being replaced, if possible, so that, if symptoms improve, the pneumothorax may be continued.

In an attempt to bring out through this fragmentary discussion certain essential phases in the diagnosis and treatment of tuberculosis I have not mentioned the train of symptoms which many dwell upon as early manifestations of early or concealed tuberculosis, such as low blood pressure, the so-called neurocirculatory asthenia, the effort syndrome, certain nervous manifestations, viscerosensory reflexes, amenorrhea, digestive disturbances, et cetera, as these occur, not only in tuberculosis, but in other diseases, as well. When the cardinal symptoms per se are present they are valuable as confirmatory evidence, the finishing touches of an outlined picture. Some of our more recent therapeutic measures are helpful adjuncts, especially in treating the complications of the advanced cases, but the rational treatment in the future will consist essentially of rest, education of the patient, good food and air, and graduated exercises. The greatest good lies in education of the medical profession and the public to recognize the disease earlier and be consistent in the accepted forms of treatment.

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FOR DISCUSSION SEE PAGE 591

THE MANAGEMENT OF THE TUBERCULOUS PATIENT*

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The proper management of tuberculous patients is extremely difficult. Every case offers problems for solution, some of which at first thought seem to be almost insurmountable. The greatest asset to the physician is to have the patient's point of view; to know precisely how the patient feels when first told that he has pulmonary tuberculosis and to be so thoroughly in sympathy with the patient as to gain his confidence and be able to persuade, comfort, encourage, and strengthen him for the fight. Furthermore, the physician must possess good judgment as to the significance of the various types of tuberculous lesions and as to the general and special treatments which each one requires. The financial status of the family and the mental development of the patient are factors which must be given due consideration in outlining the patient's treatment. A special study must be made of the temperament of each patient. A statement which is perfectly safe for one patient may do definite harm if made to another patient of a different temperament.

The management of the case depends, to considerable extent, upon whether the patient has minimal, moderately advanced, or far advanced disease, and, furthermore, as to whether the disease is active or inactive.

In the last few years there has been considerable discussion regarding peribronchial tuberculosis. Most patients who have no positive findings except peribronchial tuberculosis revealed by the *x*-ray may be advised to continue their work provided they report every three months for reexamination.

Persons with suspected pulmonary tuberculosis (idiopathic pleurisy with effusion or hemoptysis) should be placed in a sanatorium or given home treatment over a period of several months. Such a period will serve, not only to make the patients aware of the seriousness of their condition, but also to teach them the ways of right living to prevent a real break-down at a later date.

Patients who are found to have demonstrable non-clinical pulmonary tuberculosis (parenchymatous lesion revealed by *x*-ray only) are soon returned to their work with the instructions that they lead well regulated lives and return for reexamination every two or three months for a year or so.

Safe advice to every person of active pulmonary tuberculosis whether in the minimal, moderately advanced, or far advanced stage, is to enter a first-class sanatorium for the tuberculous. I specify a sanatorium of the first-class because institutions of any other class are bad for the patient. By first-class I refer to discipline and medical and nursing care, and not necessarily to the rate charged per week or month. The patient who lives in a first-class sanatorium for a while receives knowledge concerning the disease and the care of his health that can be gained in no other manner. In the sanatorium the general treatment consists primarily of rest, well-regulated exercise, the proper amount of nourishing food, and good ventilation. In many institutions education has played a tremendous part in the treatment of tuberculosis. At stated intervals the patients are given lectures and shown pictures pertaining to the treatment and prevention of tuberculosis. They are requested to read excellent books on tuberculosis, all of which are provided by the sanatorium library. Education is so important in the treatment of pulmonary tuberculosis that Dr. H. A. Pattison, of the National Tuberculosis Association, has recently advocated that sanatoria become training centers where patients would receive treatment and training for a period of only three months. Then the patients would be sent home to continue the treatment under medical supervision.

The first-class sanatorium approaches the ideal method of caring for tuberculous cases, but, needless to say, there are many patients who will never have the advantages of sanatorium treatment because they refuse to go or because of the limited sanatorium capacity. Therefore many physicians are called upon to treat tuberculosis in the home. Excellent results may be obtained from home treatment, but it is extremely difficult to get the proper co-operation of the patient and the family. I have made it a rule to require every patient with active tuberculosis who demands home treatment to remain in bed for at least six weeks and as long thereafter as the symptoms warrant. During the period in bed no forced feeding is practiced, but the patient is allowed a reasonable amount of good wholesome food. The patient is kept in a well-ventilated room or, preferably, on a sleeping-porch. The day has passed when patients are advised to expose themselves to very low temperatures and bad weather for the sake of being in the "open air." A well-ventilated room which is kept comfortably warm in cold weather is sufficient. During this period in bed the patient should be protected from excitement and too numerous visitors. In short, every bit of energy possible should be conserved to combat the disease. During this period of rest in bed considerable time is devoted to educating the patient and family as to the cure and prevention of tuberculosis. In addition to personal conversation a list of first-class books is given to the family for study, and it is always recommended that the family subscribe for the *Journal of the Outdoor Life,* published by the National Tuberculosis Association.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

After the patient has been free from symptoms (elevated temperature, accelerated pulse, and rapid respiration) for one month or longer depending upon the stage of the disease he is allowed to go to the table for one meal a day. If no symptoms appear after a week or two the patient is allowed up for two meals a day. If no symptoms develop within the next week he is permitted to go to the table for three meals a day. A little later the patient is permitted to take exercise in the form of walks. On the first day at about 10 o'clock he walks slowly from the house for two and one-half minutes by the watch and then turns and walks slowly back to the house. This five minutes of exercise is taken every morning for a week, and, if no symptoms of activity occur, a similar walk for five minutes is permitted in the afternoon at about 4 o'clock. The exercise is very gradually increased until the patient is walking three or four hours a day. Light work may then be undertaken for an hour or so a day, and the time gradually increased until the patient has a reasonably good working capacity. Just as long as possible the patient should spend nine or ten hours in bed each night, and one or two hours in bed each afternoon. Some patients find that they can keep in reasonably good condition by going to bed immediately after supper and remaining there until nearly time to go to work in the morning. Some even find it necessary to remain in bed over the week end.

Nearly every patient inquires as to what kind of work he should plan to do. Unless his previous occupation involves hard physical exercise it is usually best to return to that, for the strain and expense of learning a new occupation are often too great. This of course does not apply to the ex-service man who receives his training at the expense of the Government. Generally speaking, clerical positions which do not require that the patient be on his feet a great deal are the best. Such positions are sometimes objected to on the ground that they require the patient to be indoors all day. If the patient sleeps in a well-ventilated room or sleeping-porch at night indoor work is permissible.

There are certain patients who require special methods of treatment, such as heliotherapy, artificial pneumothorax, and postural rest.

Heliotherapy.—Although it has been known for centuries that the sun has beneficial effects upon patients suffering from certain disease conditions, heliotherapy has been placed upon a scientific basis only in the last few decades. Rollier has met with excellent results in treating surgical cases in the natural sunlight in the Alps Mountains above the cloud line. Pryor, Hyde, and Lo Grasso, Bendes, and others have shown that a high altitude is by no means essential to good results from heliotherapy. The patient is placed in the sun well protected from the winds, and the exposure is begun very gradually. On the first day only the feet to the ankles are exposed for a period of five minutes. On the second day the feet are exposed ten minutes; and five minutes exposure is given from the ankles to the knees. On the third day the feet are exposed fifteen minutes, the ankles to the knees ten minutes, and the knees to the hips five minutes. On the fourth day the exposure of the parts previously exposed is increased five minutes, and the abdomen is exposed for five minutes. On the fifth day all exposures are increased five minutes and the thorax is exposed five minutes. The exposures each day are given to both the front and the back of the body. From this time on the exposures are increased five minutes a day until the patient is lying in the direct sunlight two or three hours a day. One to one and one-half hours are given in the morning and the same length of time in the afternoon. The eyes and head are always protected from the direct rays of the sun.

Heliotherapy has been used extensively in tuberculosis of the bones, joints, and lymph nodes.

Rather recently it has become quite popular in the treatment of tuberculous enteritis, otitis media, laryngitis, etc. For a long time members of the medical profession felt that sun treatment was contra-indicated in cases of pulmonary tuberculosis. More recent work has shown, however, that such treatment may be given many pulmonary cases with reasonably good results.

In some parts of the United States the sun shines very little during certain seasons of the year, therefore we are deeply indebted to the physicists who have constructed artificial sun lamps which produce results quite similar to those obtained from natural sun light. These lamps are valuable in the treatment of certain cases of pulmonary tuberculosis, tuberculous bones and joints, tuberculous laryngitis and otitis media, tuberculous peritonitis and enteritis and other tuberculous lesions. The exposures may be made every day, or two or three times a week. The length of each exposure depends upon the distance of the lamp from the body. A book of directions is furnished with each lamp. These lamps are found to be very valuable in climates where there is much sunshine in that they may be used in many febrile cases when natural sunlight is contra-indicated because of the presence of too numerous heat rays.

Attention is called to the following cases:

Case 1—A man aged 37 with extensive tuberculous infiltration involving the upper lobe of each lung with cavitation in the right upper lobe. Tubercle bacilli were demonstrated in the sputum in many examinations. This patient's temperature was well beyond 100° every afternoon, the pulse was accelerated, the cough severe, and the expectoration profuse. The patient developed a tuberculous throat and was referred for heliotherapy. He was given daily alpine lamp exposures over a period of two months. After the first ten days the temperature had subsided, and other symptoms were less marked. The improvement continued, and at present (nearly one year later) his throat specialist informs me that he is unable to detect any evidence of active tuberculosis of the throat. The lung condition has gradually improved, the weight has increased from 100 to 150 pounds, and he is now taking three hours exercise daily.

Case 2—A young man with bilateral pulmonary involvement. Tubercle bacilli were demonstrated in the sputum. He developed symptoms of severe tuberculous enteritis with an average of twelve to fifteen stools daily, pain in the abdomen, and rapid loss of weight. This patient was given the proper exposure to direct natural sunlight. After the first few exposures his symptoms began to disappear, and at the present time he has no symptoms of tuberculous enteritis. Moreover, his weight is somewhat above the normal.

In this connection I can not refrain from calling attention to a case reported by Dr. Gerald B. Webb, of Colorado Springs, before the seventeenth annual meeting of the National Tuberculosis Association. Dr. Webb said:

> This is an infant eight months old with plastic tuberculous peritonitis, which was almost hopeless. This baby was sent out by Dr. Curry, of New York. There was a definite proof of bovine infection. We had that child under heliotherapy for six months without any benefit to a mass on the abdomen six inches across and three inches wide. When I say there was no benefit I mean that the child had gained no weight, and we did not feel very much encouraged about curing her. We then changed to the use of the quartz lamp, the alpine lamp. Within a very short time we began to notice a very great improvement in this infant. Its weight was increased, the mass began to disappear, and after eight months' use of the quartz lamp the mass had practically entirely disappeared, and Dr. Curry now tells me in New York that if he had not known the mass had been there, he could not be sure there was ever anything the matter.

Artificial Pneumothorax.—Long ago nature taught us that a part of the body affected with tuberculosis should be thrown at rest. For example, in tuberculosis of a joint an ankylosis often places the diseased part at complete rest, while in pulmonary tuberculosis pleural adhesions tend to reduce the movements of the affected part of the lung. Again a pleural effusion not infrequently so compresses the diseased lung as materially to reduce its function, thus giving the tuberculous lesion an opportunity to begin the healing process. After nature had demonstrated the beneficial results obtained from resting a tuberculous organ man devised the cast, the bone graft, and artificial pneumothorax. In artificial pneumothorax we simply introduce gas or sterile air into the pleural cavity in an attempt to equalize the intrathoracic and intrapulmonary pressures. When the negativity of the intrathoracic pressure becomes reduced the lung tends to collapse. Ordinarily it is wrong to speak of *compressing* a lung. The truth of the matter is, we simply equalize the pressure inside and outside the lung, and it collapses of its own accord because of the nature of its tissues. Under certain conditions, however, we develop a strongly positive intrathoracic pressure in an effort to compress an area of lung tissue which is so changed by disease that it can not collapse of its own accord.

Artificial pneumothorax treatment is indicated in (1) patients suffering from unilateral advanced pulmonary tuberculosis who do not respond well to the usual antituberculosis regimen; (2) patients with bilateral disease if the lesion is very small or quiescent in the better lung; (3) patients having severe hemorrhages which can not be brought under control by the usual methods; (4) cases of uncomplicated pulmonary abscess; (5) cases of unilateral bronchiectasis; (6) certain advanced cases as a palliative procedure. In carefully selected cases excellent results may be obtained from bilateral partial pneumothorax.

This special treatment is contra-indicated in (1) all uncomplicated cases of pulmonary tuberculosis until it is known that the rest treatment can not be taken or is not sufficient in itself; (2) in cases with active disease in an entire lobe of the "better lung"; (3) in cases with numerous adhesions which may prevent collapse.

Unfortunately, artificial pneumothorax is possible or indicated in only about 10 per cent of the tuberculous patients as they come to us.

The results obtained from this treatment are quite encouraging. In ideally selected patients (with unilateral disease) one may hope for a good percentage of arrested cases. In patients with bilateral disease, inactive on one side, a fair number are benefited, while in others the disease in the better lung becomes active, and the treatment must be discontinued. In suitable cases the prognosis is increased approximately 50 per cent by artificial pneumothorax.

In far-advanced cases with bilateral disease producing marked toxic symptoms a partial collapse of the worse lung is frequently a splendid palliative procedure. In pulmonary abscess good results may be obtained if the disease is not of too long standing. The results are little less than miraculous in patients with pulmonary hemorrhages who do not respond to the usual method of treatment.

Postural Rest.—Inasmuch as the artificial pneumothorax procedure is attended by certain dangers, such as gas embolism, pleural shock, or the formation of fluid in the pleural cavity, and it is contra-indicated or impossible in a large percentage of cases of pulmonary tuberculosis, we are fortunate, indeed, in having a method somewhat slower, but often quite as effective, which may be substituted for artificial pneumothorax in many cases. This method of treatment known as *postural rest* was described recently by Webb, Forster, and Gilbert, who reported excellent results in more than 200 cases. The only failures encountered by these authors were in cases too far advanced with bilateral disease, or in patients who failed to carry out the treatment faithfully.

The patient is instructed first to lie on the side of the more diseased lung for a few minutes each day; then the time is gradually increased until the patient lies on this side for at least twenty hours every day. A small hard pillow is usually placed under the ribs. Webb, Forster, and Gilbert have shown that the lung on the side upon which the patient lies undergoes less movement than the opposite lung during respiration, and its aëration is greatly decreased. The heart becomes displaced toward the recumbent side, the ribs are brought closer together, and when the foot of the bed is slightly elevated the abdominal viscera push the diaphragm upward on this side, and the result is marked diminution of the lung volume. It is obvious that under such conditions the recumbent lung is much less used than the opposite lung.

By this treatment it requires only a few weeks to obtain results which closely simulate those obtained from artificial pneumothorax treatment—that is, subsidence of fever, decrease in pulse rate, loss of cough, greatly diminished expectoration, and decrease of râles. Ordinary pulmonary hemorrhages also respond nicely to postural rest. Webb reports a case in which there had been extensive disease of the left lung with a series of hemorrhages eighteen years ago. At that time the patient was given postural rest, and at the present time this patient is working as a stenographer.

The following quotations from Webb, Forster, and Gilbert after their extensive study give one an appreciation of the value of this method of treatment:

"We have had several patients in whom improvement was noted, but resort to pneumothorax was necessary on account of the far advanced condition of the bad lung. In general, however, far fewer patients than formerly have needed treatment by pneumothorax. We are convinced that postural rest in pulmonary tuberculosis carried out with surgical splint thoroughness is the most valuable means we have at hand for the arrest and cure of this disease."

Since the appearance of the paper on postural rest by these authors many other clinicians have adopted this method of treatment with splendid results. I wish to cite a single case.

A young woman aged 20 was a medical student when she noticed that her health was slightly impaired. She weighed 110 pounds. On December 6, 1920, she had a frank hemorrhage. When first seen the daily temperature rose from 101° to 103°. Physical signs revealed evidence of pulmonary tuberculosis above the second rib and the third dorsal spine on the left side. Stereoscopic plates showed a very definite parenchymatous infiltration above the clavicle and in the first and second interspaces on the left side. The sputum contained numerous tubercle bacilli.

This patient refused to go to a sanatorium, but the family promised to follow directions to the letter. She was given the usual antituberculosis treatment to which was added postural rest. She was an absolute bed patient for four months during the greater part of which time she lay on the left side. In three weeks the temperature and pulse were normal, the cough had subsided and the expectoration was diminished in amount. The postural rest was continued over a period of four months, after which the patient was started on graduated exercise. The exercise was increased very gradually until now, after a period of treatment of seventeen months she is carrying more than half time school work. She has gained from 110 to 150 pounds, is entirely without symptoms and has negative sputum. I am convinced that her recovery has been hastened by the four months postural rest which she received early in the treatment.

A recent special method of resting the lungs was presented at the eighteenth annual meeting of the National Tuberculosis Association, May, 1922, by Dr. S. Adolphus Knopf. Dr. Knopf called attention to the fact that he has obtained good results in treating pulmonary tuberculosis of the upper lobes by having the patient lie on the back and employ deep diaphragmatic breathing at the rate of six to eight respirations per minute. He has found that patients may be taught to do this comfortably for several hours a day, and that by so doing the upper lobes of the lungs are given much rest. Dr. Knopf's results are very convincing, and undoubtedly his method will be quite generally adopted.

HEMOPTYSIS

There is nothing so alarming to the patient and family as hemorrhage. The blood may vary in amount from a teaspoonful to enough to cause the death of the patient. Generally speaking, a hemorrhage does not greatly alter the prognosis; however, there is danger of spreading the disease to other parts of the lungs or of the development of a pneumonia after hemorrhage. The bleeding should be placed under control at the earliest possible time. In order to do this the patient must not be allowed to undress, but should be placed in bed in a semireclining position with the trunk of the body at an angle of 30 degrees to 45 degrees with the plane of the bed. This position is best because it is the most restful position, and the patient can expectorate and take the necessary food with practically no physical exertion. If much blood is lost the clothing should be cut off to avoid exertion on the part of the patient.

For a few days the ice-bag may be kept over the heart if no pleurisy exists in this region. The patient may be allowed to suck ice, which not only quenches the thirst, but tends to quiet the cough. Some patients are unable to take ice in this manner because of its nauseating effect.

The patient's diet is limited to eight ounces of solid food and ten ounces of liquid a day for the first few days following a hemorrhage. The food may be warm, but hot liquids, such as soup, coffee, and tea, are not permitted because they are absorbed quite quickly, tend to stimulate the heart, and to increase the blood pressure. By requiring the patient to take a very small amount of liquid at a time, and no more than ten ounces in twenty-four hours the blood pressure may be kept down while the break in the vessel is being healed. The citric acid fruits are best avoided.

The patient should remain quiet in bed for a period of seven to ten days after all bleeding has stopped. Straining at stool must be avoided by the use of small doses of magnesium sulphate. During this time the arms should be kept along the side of the body as much as possible. If adhesions bind a part of the lung to the chest wall certain movements of the arms may cause stretching of the lung tissues with increase in the bleeding.

It requires considerable nervous energy and causes some excitement to meet people; moreover, talking and laughing are dangerous to the patient. Therefore all visitors must be excluded, and it is best if the patient sees only the nurse for the first few days.

The room should be well ventilated and cool (50 degrees to 60 degrees), but the patient must be kept comfortably warm at all times, as chilling of the skin may increase the bleeding.

Medication and Special Methods.—Not infrequently patients with hemorrhage become extremely nervous. Such patients should receive from 1/6 to 1/4 gr. of codein sulphate. If codein is found to be insufficient 1/8 to 1/6 gr. of morphine sulphate may be given three or four hours later. The narcotic provides a period of quiet, which is very important in the treatment of pulmonary hemorrhage.

Calcium lactate in 10 gr. doses three times a day may be administered for three or four days. Many clinicians believe this has no beneficial effect, but, at least, it has a definite psychic effect.

In some cases blood serum apparently helps. There are numerous preparations on the market such as hemostatic serum, and coagulin ciba, which may be injected subcutaneously. Normal horse serum may be used.

The dosage and directions for the administration of the various sera usually accompany each package. In the absence of the especially prepared sera one may inject subcutaneously 10 to 20 c.c. of whole blood from a relative or friend.

Postural rest is quite effective in cases of ordinary hemoptysis. The patient lies upon the side of the bleeding lung; and the partial compression of that lung due to posture will often bring the hemorrhage under control.

In patients who are losing a large amount of blood, and the bleeding does not respond to the usual treatment, artificial pneumothorax is indicated. When one has determined which side is bleeding gas is injected into the pleural cavity of that side. One may be compelled to make an initial injection of 500 to 1,000 c.c. in order to stop the bleeding. The following case illustrates the value of artificial pneumothorax in the control of pulmonary hemorrhage:

A woman, aged 45, had been in poor health for some months, but apparently had never suspected pulmonary tuberculosis. After a period of three or four days of hard work and loss of sleep she had a frank pulmonary hemorrhage. Immediately she was placed on routine hemorrhage treatment. All went well until the third day, when she had a small hemorrhage. One week later she began to have hemorrhages late at night. She became quite exsanguinated. Pneumothorax was definitely indicated, and this was begun at the earliest possible time. Five hundred cubic centimeters of gas injected into the pleural cavity stopped the bleeding in a very short time. This treatment has been continued over a period of six months, and there has been no recurrence of hemoptysis.

SUMMARY

1. Sanatorium treatment should be recommended strongly for all cases of active pulmonary tuberculosis. If sanatorium treatment is impossible, an attempt should be made to carry out the sanatorium routine at home.
2. Education of the patient as to the nature and treatment of the disease is one of the most important factors in treating pulmonary tuberculosis.
3. Heliotherapy is a valuable aid in treating tuberculosis, but should always be employed in conjunction with the rest treatment.
4. Artificial pneumothorax may be employed in only about 10 per cent of the patients who apply for treatment to-day. When this procedure is possible it usually makes the prognosis about 50 per cent more favorable.
5. Postural rest may be used with real benefit to the patient in a large percentage of pulmonary cases. Recovery is often hastened weeks or months when this method of treatment is carefully carried out.
6. In the treatment of pulmonary hemorrhage rest and posture are important. Narcotics in small doses are often indicated. In extreme cases one should resort to artificial pneumothorax.

DISCUSSION OF THE TWO PRECEDING PAPERS

Dr. Edward William Jones (Mitchell): I am unable to say very much regarding these two papers, but the subjects have been very well handled by the authors. I keep on sending cases to the sanatorium if it is possible to do so.

With regard to the paper of Dr. Wittich: He left out unnecessary remarks that usually creep into the average discussion on any subject, and particularly tuberculosis. I refer to unnecessary findings and symptoms that have no particular bearing on the disease whatever, because you will find them in other diseases or other depressed states.

As to the question of pneumothorax: Apparently it is well worthy of a lot of study and should not be handled except by a man who has had a good deal of experience on account of the ill results that may follow such a procedure.

We all know that rest in bed, a good nutritious diet, and good air are the three essentials in the treatment of tuberculosis.

Dr. Myers brought out some of the newer ideas in regard to treatment which are well worth using in practice, with the exception of pneumothorax, and that should be handled by a man of considerable experience.

Dr. Finn Koren (Watertown): I would like to say a few words about the subject of tuberculosis, not bearing upon the papers particularly, but a sort of addendum. In this state we have in the neighborhood of 6,000 to 9,000 cases of active tuberculosis roaming around in the state, and of this number provision is made by the state for the treatment of approximately two hundred. It is up to the medical profession to take collective action for the proper handling of these tuberculosis cases. This is always a state question. I believe the State of Minnesota is the most advanced in the Union in the handling of tuberculous cases. They have about 14 sanitaria, with a total of 1,200 or 1,300 beds. Each sanatorium has a heavy waiting list, and they have actually made a considerable reduction in the tuberculosis incidence. It is up to us to do the same in South Dakota, and I believe if each physician will agitate this question in his neighborhood we shall be nearer a solution of the true handling of the tuberculosis situation in South Dakota.

Locally, we have tried to interest various civic bodies in the tuberculosis question, and I find them eager for action.

We are going to ask the legislature of this state to pass a law somewhat similar to the code in Minnesota that covers this same subject, largely through counties or groups of counties erecting sanatoria and having state maintenance of local and state sanatoria.

Dr. H. J. G. Koobs (Mitchell): If I understood Dr. Wittich rightly when he spoke of the value of the endermic tuberculin test, he said its value is questionable in the presence of possible symptoms suggesting tuberculosis when there is absence of chest findings.

I wonder if, when a patient presents symptoms of tuberculosis (not necessarily of pulmonary tuberculosis, but tuberculosis of some sort) the endermic tuberculin test, if positive, would not suggest intestinal or some other form of tuberculosis when the lung findings are negative.

I wish that Dr. Wittich would say something in regard to this in his closing remarks.

Dr. Wittich (closing on his part): There is a tendency in the almost overwhelming literature on tuberculosis to emphasize relatively unimportant diagnostic details and therapeutic measures that may be helpful adjuncts, but not primarily essential. Diagnosis is in advance of treatment, hundreds of open cases being found in the dispensaries and private clinics who cannot enter sanatoria on account of lack of beds and so pass on to the advanced or hopeless stage of the disease before receiving proper treatment. And many leave the santatoria with positive sputum.

The sanatoria in this section of the country at least are overcrowded. Some are mere asylums for advanced cases to spend their last days; others are very satisfactorily equipped with tile floors, marble halls, and expensive *x*-ray and heliotherapy apparatus, but filled with the same class of patients whose chances of being alive five years hence are ten to thirty per cent, while the early hopeful case progressively gets worse for lack of proper guidance and treatment. What we need is less expensively equipped institutions, but more of them equipped with more beds, good airy wards, better food, and enough staff members so that patients may receive systematic courses of instruction. It is hoped that the future is not too distant when more general hospitals will receive the tuberculous for treatment. At present some sanatoria with long waiting lists harbor chronic cases from three to five years. It would seem to me that, until we have more beds, the length of residence for the early case should be limited to six months or a year at the longest.

The education of the patient during sanatorium residence is not what it should be. Hundreds of patients leave sanatoria with the false impression that they have been cured of tuberculosis and without any knowledge about how to regulate their future lives or of the dangers they are to encounter. The number of relapses is appalling.

It is most encouraging to see the drop in the death rate, and some would have us think that the occasional advanced consumptive in our midst is succeeding in universally tuberculizing the masses and conferring relative immunity against subsequent infections. When one reflects that less than one-quarter of 1 per cent of the people of North America die of tuberculosis and about only one and one-half of 1 per cent are sick, it does make tuberculosis seem less menacing, yet the work at hand brings us to a sad realization that local conditions are far from utopian.

In answer to Dr. Koobs' question: Although my paper is limited to remarks on pulmonary tuberculosis, the endermic or Mantoux test has been used where the symptoms are suggestive, and the physical signs absent or doubtful. If there is a definite reaction it may tell which way the wind is blowing and suggest looking for tuberculosis elsewhere in the body. In the absence of cardinal symptoms or definite physical signs pulmonary, intestinal, etc., it is of doubtful significance. Given a case of renal disease with no demonstrable lung lesion, a positive intracutaneous reaction to tuberculin indicates a study in further detail. Catheterized urine containing tubercle bacilli inoculated intraperitoneally in a guinea-pig will produce a beautiful skin reaction to tuberculosis on the animal in a relatively short period. There is no serologic or biologic test that enables us to differentiate between active and inactive lesions. The complement-fixation test in time may become more standardized and be of greater value. In the hands of the best observers 10 per cent of the people with negative complement fixation have bacilli in their sputum.

Dr. Myers (closing on his part): I am glad, indeed, to learn that efforts will be made soon to establish more sanatoria for the treatment of tuberculosis in South Dakota. It seems to me that the value of the sanatorium is becoming more and more apparent. It is here where patients with active disease learn, not only to prevent the spread of their disease to others, but, also, to build up a resistance to the disease and often add many years of usefulness to their lives. One of the greatest, if not the greatest, role of the sanatorium is thoroughly to educate the hopeful patients, and send them out as field missionaries. I am firmly convinced that the recent marked decline in the death rate from tuberculosis is due in no small part to the education which patients received in the sanatoria of our country.

Should not the fight against this disease which causes one death in every eight throughout the world command the attention and demand the support of every strong and loyal American physician? It is our duty to see that the public is informed that tuberculosis is truly a curable and preventable disease. When we have done our duty thoroughly there will be no real difficulty in securing ample appropriations to wage a winning war against tuberculosis.

CASE REPORTS PRESENTED BEFORE THE MINNESOTA ACADEMY OF MEDICINE

Meeting of October 11, 1922

Dr. H. L. Staples, Presiding

Dr. A. E. Benjamin reported a case of acute appendicitis in a man of 80 years, as follows:

Mr. A. A., aged 80, an old soldier.

Family history, good. Personal history, good until first of month.

Present illness: October 1 had acute abdominal pain, but up and around, some nausea and vomiting on the 3rd. Called a physician that day. October 4, small mass found in right pelvis; temperature, 100°; pulse, 100-115, intermittent and irregular.

Physical examination: apparently well-nourished and general condition good. Patient suffering very little pain excepting on examination. Considerable resistance to pressure in right iliac region. Mass found in this area. Heart very irregular and rapid.

Laboratory: October 4, leucocyte 15,000. Morning of the 5th, 16,600. Urine showed albumin and few casts. P.S.P. 33 per cent.

Operation: October 5, under local anesthesia and gas; oblique incision; appendix not readily reached. Patient's age and condition of heart did not warrant lengthy operation, therefore the appendix was not removed. About two and one-half ounces of creamy pus was evacuated. Two ¾-inch drainage tubes in region of abscessed cavity.

Treatment: glucose and soda and bromides by bowel; with hypodermics of morphin and atropin first and second day for pain.

Convalescence: Patient very restless, but kept fairly quiet with bromides. On the second day the heart was irregular and weak. On the third day the patient somewhat better. There was considerable discharge from the abdomen, and less distention. No vomiting; taking considerable water; proctoclysis not readily retained. Bromides internally and digitalis evening of third day. On fourth day the patient suddenly experienced difficulty in breathing. Temperature, 103°-104°. He died in a few hours after the onset of the pulmonary trouble.

Remarks: The patient was evidently improving after the operation, but died suddenly from some unknown pulmonary complications. No post-mortem obtained. The patient was not operated on immediately because of the bad condition of the heart and kidneys.

Dr. A. T. Mann: Wasn't this pulmonary embolism?

Dr. Benjamin: It may have been, but we could not get a post-mortem.

Dr. H. P. Ritchie reported cases of unusual combinations of congenital cleft lip and palate, as follows:

The first cases are twins. This is by no means an infrequent occurrence. The familial incidence is quite interesting. I have had under observation three pairs of brothers and two pairs of sisters; one father with a postalveolar cleft and his tenth child with a similar cleft; also one aunt and niece.

These are Louise and Lillian, born in Duluth February 26, 1921, and were brought to the University Hospital when about one month old, and I found that they both occur in the same group, viz., Group III, alveolar cleft, according to the classification which Dr. John Staige Davis and I have worked out. These are unilateral cases. Louise had a cleft in the alveolar process of over three-eighths of an inch, and Lillian had a cleft of over one-fourth of an inch. Louise had a complete cleft lip, and Lillian an incomplete cleft lip. I operated on Louise on March 28, 1921. putting in the Brophy plates, which were left on for about a month, when they had to be removed on account of malnutrition of the child. The lip was done about a month later. Lillian was operated on at the same time by doing only the lip, and the process cleft was closed in three days following this procedure. Lip pressure closes the alveolar process cleft if we can get them early enough, and the cleft is not too wide.

Our plan of record is based on the condition of the alveolar process. If this is normally closed we have two groups, namely Group I, pre-alveolar cleft, indicating a dissociated cleft lip; Group II, postalveolar cleft, indicating a dissociated cleft palate; and Group III, which includes all cases in which the process is cleft and these are then recorded as Group III, alveolar process cleft. In this group the cleft lip and cleft palate are usually associated, but not always, as there may be present a normal palate with cleft process and lip. The acceptance of this plan also requires the disuse of the term "harelip." This plan then gives us the opportunity of describing separately the lip, process, and palate, instead of trying to record the case by describing the anatomical form or degree, which is impossible to do with any degree of uniformity.

Case 2. Median cleft lip and palate. This cleft is of rare occurrence. Several of the cases reported appear to me as really bilateral clefts in which the premaxilla is rudimentary or congenitally absent.

This case is recorded as a Group III alveolar cleft median, with an incomplete lip and bilateral palate. In Dr. Brophy's classification of the fifteen forms of palate cleft, the condition in this case is not represented, that is, a complete palate cleft associated with a complete cleft of the alveolar process.

This is of great interest from the standpoint of embryology.

Dr. Schlutz: You spoke of removing the palate because of the malnutrition of the child. Is there any objection to tubal feeding?

Dr. Ritchie: It is interesting to see how well some of these babies do on tube feedings. One child has been tubed now for about six months. I feel that these palates should not be operated on (and then only in selected cases) earlier than six months. This cleft palate work is really a big procedure and there is a reaction to it that we cannot afford to risk if we can develop a way of feeding and this gavage is proving most successful.

I never want to make an alibi on this work and am perfectly willing to report every case. Less than 50 per cent of the primary operations on the hard palate are successful entirely and the other 50 per cent have come back for a secondary operation. These twins were tubed for ten days after the palate operation, and on the fourteenth day a hole appeared in the hard palate. I think the tubing or gavage are life-savers in a lot of those cases, but they are only used as preparatory before operation to get the child built up, and as soon as we get the palate closed I think that spoon-feeding is the proper procedure.

Dr. Benjamin: This is the most disappointing of all surgical work. I had the pleasure of seeing five cases in my office, every one of them failures. Some woman had brought them in in order to show me what success she had had in teaching them to talk. I think Dr. Ritchie's classification is perhaps as logical as any I know of and is the one we should adopt.

I have used adhesive plaster in cases of cleft palate with a large protruding premaxilla, and it is surprising how much easier the work of repairing these cases was afterwards and how it brought the tissues together. The plan of operating on the cleft palate first in some cases I think is wrong because a number of cases, as Dr. Ritchie has demonstrated and operated on the lip first, the cleft in the palate nearly closed of its own accord.

Dr. Farr: I do not believe that tubing is responsible for the failure of union in these cases. I recall a case which broke through three weeks after operation, after the patient had returned home. The union in this case was evidently not as good as it appeared.

With regard to the reposition of the bones: Dr. Brophy's contention is that no reposition is complete unless we have a bony union of the alveolar processes, which union he claims is very helpful in the future development of the upper jaw. When the lip closure is depended upon to bring the processes together, bony union cannot take place.

I have shown a picture of four patients whose lips were closed in infancy in which each patient could place the middle finger between the anterior margins of the alveolar process.

Dr. H. B. Sweetser reported the following case of carcinoma of the hepatic flexure of the colon:

Mrs. W. S., married, aged 43, eight children, stout, had never had any previous illness and no attacks at all similar to those now complained of. Is extremely nervous.

Family history, negative. Father lived to age of 85, and mother died at 65 from gangrene of the leg. Four brothers and three sisters are living and well. There is no case of cancer in either branch of the family.

Present history: Patient was first seen by me on August 9, 1922. About a month before she began to have attacks of sudden pain across the lower abdomen which came from one to four or five hours after eating and lasted a short time; these pains were not very severe, and she had not consulted a doctor. Her bowels before that time had moved daily, but since then she has had to take a cathartic. She has had no diarrhea or no vomiting. Her appetite is good, but she says she is afraid to eat. She thinks she has lost some weight. I saw her again on September 14, and she stated that she was much better as regards her bowel symptoms, but was very nervous. On September 16 she telephoned that she had a severe attack of pain in the abdomen with a desire to move her bowels, but with little result. In a few hours this had passed away; this was repeated on September 20, and she was then sent to the hospital for observation.

Examination at the hospital on September 21: She was given a barium meal, which proceeded easily to the hepatic flexure of the colon and there stopped. Although she was given castor oil first and atropin later, on the fifth and sixth days the bismuth still showed a shadow stopping at the hepatic flexure. An enema of barium was given on September 24 and then on September 30; in both of these the barium stopped at the hepatic flexure and did not intermingle with the barium meal. No tumor was palpable at all. From these findings the diagnosis of obstruction was made, due probably to an annular carcinoma.

Operation was done on the 4th of October, under gas anesthesia, and an annular tumor was found causing almost complete obstruction about an inch in diameter and projecting into the lumen of the bowel entirely encircling it. A resection was done including about six inches of the ileum, the cecum, ascending colon, and the transverse colon to the left of the middle line. An end-to-end anastomosis was made following the technic of Horsley in the endeavor to make an artificial valve. Following the operation there were no vomiting and no distention; and she passed gas freely on the second day. At the present time, eight days after operation, the patient is in very good condition, having had an uneventful convalescence so far. Microscopically this was adenocarcinoma.

Dr. Head: Then the prognosis is fairly good?

Dr. Sweetser: I think so.

Dr. Ulrich: How long do you think it had been there?

Dr. Sweetser: Her first symptoms were in June. I could not find anything wrong with her and put her down as a neurasthenic. She did not make much of the attacks of pain. Her bowels had moved every day up to that time, and there was no vomiting at all.

Dr. Ulrich: One of the striking things is the fact that there was no dilatation with this obstruction. Was there any hypertrophy?

Dr. Sweetser: Not a thing. I was rather surprised to find this condition at operation. To have the bismuth stay there for seven days and still have no more clinical symptoms than she had was the surprising thing to me.

Dr. Wallace Cole read his Thesis entitled, "Primary Tumors of the Patella." No discussion.

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PSYCHIATRY AND POLITICS

The recent election, federal, state, and municipal, from which the country has finally emerged, was an evidence of resentment, but against what and for what no one seems to know. This overturning of the political situation affected England in the same way, except that they do it a great deal better than we do. We take months or a year in our preparation for election,—the selection of candidates and the campaigning which goes on in such hysterical fashion and lasts until the eve of election. All this is done away with in England. There they take about a month following the resignation of a government for the selection of candidates and their election. Then within a week the new organization takes hold, whereas in the United States the political troubles are at a high and crazy point for several months following the election and several more months before the new congress begins its work. It is not to be wondered at that very few men who are fitted or qualified for political duties care to expose themselves to the rigors and to the "insanity" of a campaign. They much prefer to stay at home, or to continue with their work, rather than give up time, energy, and strength to a possible defeat. Of course the other side may take an entirely different view. The so-called "progressive" politicians feel that they are gradually assuming control of the country and that they will effect reforms that will do an inestimable amount of good. All this is delusion, for everyone knows that within the next year the campaign will be on again, with the same viciousness, virulence, and stupidity which characterized the last campaign,—now in a chronic state of ineptitude. The new men, with new and belligerent ideas, will not accomplish a great deal because the people will not put up with it. And it may be said, with reasonable accuracy, that the people desire truly and honestly to be good for a short time, and then they equally firmly and positively desire to undo the good that they were supposed to have accomplished. It is quite evident that one cannot legislate morals or acts that are not of sufficient dignity and importance because the spirit of resentfulness will swing the pendulum the other way. It is said, too,—and that is probably questionable,—that the prohibition law, either its enforcement or its "liberalization," as President Harding has said, will make or break the Republican party in the next election. And in the intervening two years we may expect to be stampeded, circularized, petitioned, lectured, and otherwise influenced by inumerable would-be reformers. We were about ready for the dose of medicine we have just received, and it is probable that the American people will take their own medicine with confidence and foresight and thereby recover their mental balance.

CANCER WEEK

Cancer Week in Minneapolis was appointed for late in November of this year for some good reason, probably in order to secure the presence of Dr. J. C. Bloodgood, of Johns Hopkins University. The opening on Saturday night, November twenty-fifth, with a mass meeting at the Auditorium, was well attended. Such a meeting arouses the interest of many people. Sometimes those who are nervous and apprehensive, those who have lumps or growths benign or otherwise, are very apt to attend these meetings in order to learn, if possible, whether they come under the malignant class. Consequently, it disturbs them for a period of time, but not for long; in fact, nothing disturbs the people nowadays for any great length of time. They have become calloused, hardened, and indifferent, not only to cancer, but to many other things.

Dr. Bloodgood conducted a clinic at the University Hospital for physicians and surgeons, and at noon he was a guest of honor at a luncheon given by the Hennepin County Public Health Association and the Hennepin County Medical Society. There, too, were represented the various health agencies operating in Minneapolis. This health community center will doubtless take up much of the educational work of those interested in the study of cancer, just as the anti-tuberculosis campaign has been conducted. There were free cancer clinics in all Minneapolis hospitals for several days, and free radium treatment was given in order to demonstrate, clinically, its practicability and its application.

Of course, the principal idea is to make the public understand that the early diagnosis of cancer is the most important thing. And the effort is not in any way to cause a public panic; for it is well known among physicians and surgeons that a large percentage of cancer cases can be treated and saved if the disease is recognized before the period of incurability sets in. It is said that 90,000 persons in the United States die from cancer in an early and curable state; it is further said that one out of every ten cancer patients more than forty years old dies. The tuberculosis mortality in Minnesota has been decreased 50 per cent since 1910. During the same period the cancer mortality has increased 40 per cent. Education did for the former what it is expected to do for the latter. It is expected, of course, that eventually the Committee on Cancer will be able to secure enough money for a municipal cancer clinic.

THE NOON MEETINGS OF THE HENNEPIN COUNTY MEDICAL SOCIETY

More than two years ago the Hennepin County Medical Society inaugurated weekly noon-day meetings during which time a luncheon is served beginning at half past twelve at a very nominal price, and the program begins promptly at one and is over promptly at two o'clock. These meetings have been most instructive, and are attended almost as well as the evening meetings held on the first Monday of each month. The subjects are diversified. Professors from the University have given talks on vitamines, chemistry, biology, and kindred topics, while a part of the meeting is devoted to the presentation of some medical subject by a member.

The last meeting is illustrative of what can be done. Dr. F. M. Pottenger, of Monrovia, California, the tuberculosis expert, was present, and gave a very impressive talk on "Optimism in Tuberculosis." He started with the theory that tuberculosis is, in a large number of instances, curable, and he based his conclusions upon the method in which the tuberculous are treated at the present time. He emphasized, first of all, the necessity of making a careful and early diagnosis, not waiting until the sputum shows bacilli. His suggestions were based on a careful study of the individual, his environment, his exposure, and, further, on his clinical history, which sometimes would alone furnish a basis for diagnosis. This he placed before percussion and auscultation; and he thought by inspection and palpation one could arrive at a safe prospective diagnosis. He suggested, too, that many of the so-called neurasthenic cases, many cases which come under the care of the internist, and many cases of infections of doubtful origin, are in all probability candidates for tuberculosis, and that the diagnosis should be made early enough to save the individual and to insure his proper care and treatment. The average individual, when confronted with the tentative diagnosis of tuberculosis, and the average physician who makes it, are both inclined to be pessimistic, whereas with what modern experience teaches us we should be especially optimistic.

He then went on briefly to outline the methods of treatment, and he said one thing which probably will appeal to many men who study the treatment of tuberculosis, namely, that a change of climate is not often necessary, but that, dependent upon the means of the individual, his environment and the necessity of taking him away from his daily vocation, make a change of climate desirable. What he really meant was a change of scene and occupation, and with out-of-door life as essential. He thought it matters little whether the climate is wet or dry, cold or warm.

The next point that he made was that of rest, for he and other experts have found that exercise for the tuberculous patient must be regulated with extreme care, and only after a long period of rest should it be attempted. The old idea that the moment a man begins to show evidence of tuberculosis he ought to walk it off in the open air, is passé. That he should work it off in the open air or in a room in which the air is stirring while he is resting is the desirable form of treatment.

The subject of food was touched upon, but this is so well known to most students of tuberculosis there is little to be said about it, except that these people should be well and properly and frequently fed.

He went on to state that the drug method is rather unsatisfactory: creosote, which was formerly looked upon as a specific, has little or no effect, except that it may sometimes be a disinfectant in the intestinal tract; other drugs, similar in kind, were equally unnecessary, and most of these so-called sera which have been invented, proclaimed, and lauded, are practically useless. Dr. Pottenger also paid his respects to the *x*-ray machine, and said that without the history and other confirmatory symptoms a diagnosis based upon the *x*-ray alone is rather unreliable, and that only after palpation and inspection and a study of the individual's history can it be of much assistance. This, of course, applies to the incipient or the prospective tuberculous patient, and not to the one who has advanced or definite evidence of tuberculosis in the chest.

The other feature of the noon meeting was the musical trio, consisting of Mr. and Mrs. McPhail and Carlo Fischer, who demonstrated a series of musical numbers suitable for the sick and convalescent, with violin, piano, and cello. They demonstrated that music has its place, and it seemed to be highly appreciated by the roomful of doctors. To obtain such music for the sick or convalescent is quite a different problem, and sometimes the orchestras playing before the members of an institution have wound up their concert by such numbers as "Home, Sweet Home," a deplorable selection for the average person who is sick in bed and away from his family. Then, too, it was said that the average jazz numbers usually created disturbance, disorder, sleeplessness, and unrest. Presumably the phonograph men will take advantage of this suggestion of music for the sick and convalescent, and will select records that are impressed with moderated sweet and soothing selections; and, then the patient has to be selected carefully. The indiscriminate use of music or anything else is bad for some people under any circumstances.

HENNEPIN COUNTY MEDICAL SOCIETY MEETING MONDAY EVENING, DEC 11

The Hennepin County Medical Society will put on another five-minute series of papers, on thyroid disease, on next Monday, Dec. 11, and we are presenting herewith the program as outlined by the committee. It is one of such great interest that it is to be hoped that the Hennepin County Society will turn out with its fullest membership.

FIVE-MINUTE PAPERS ON THYROID DISEASE

1. The Classification and Pathology of Thyroid Disease - - Dr. E. T. Bell
2. The Etiology of Thyroid Disease Dr. H. L. Ulrich
3. The Prevention of Thyroid Disease in Children - - Dr. N. O. Pearce
4. Basal Metabolism in Connection with Thyroid Disease - Dr. E. L. Gardner
5. The Relation of a Diseased Thyroid to Other Ductless Glands - Dr. W. A. Jones
6. The Nervous Manifestations in Thyroid Disease - - Dr. A. S. Hamilton
7. Some Forms of Thyroid Disease Affecting Pregnancy - Dr. J. C. Litzenberg
8. Thyroid Disease Amenable to Medical Treatment - - Dr. J. G. Cross
9. Diseased Thyroid Requiring Operative Treatment - Dr. Gustav Schwyzer
10. Thyroid Disease Benefited by X-ray Treatment - - Dr. R. G. Allison

There are also one or two other items relative to the policy of the society, and the nomination of the officers for the ensuing year, which really necessitate a full attendance.

DOCTORS AND THE COMMUNITY FUND IN MINNEAPOLIS

During the course of the week preceding the Community Fund drive, numerous canvassers who proffered their services were invited to meet so that they might receive instructions as to the method of securing pledges. Some uninformed and probably unimportant person in the shape of a man spoke disparagingly of the doctors and their record as community-fund contributors, and said that a doctor who performed an operation and charged one hundred fifty dollars for it subscribed ten dollars to the Community Fund. Other similar jibes were indulged in by this unknown and unfortunate and ignorant gentleman, but he received his just reward. He was met, after his talk, by the wife of a physician who virtually tore the clothes off his back, and he faced a crowd of indignant women, aside from her, who were ready to take off what remained. This man, of course, was simply one of a few who do not know. He did not consider for a moment that all of the health agencies, all of the clinics, the welfare activities, the visiting nurses, and many other institutions like the Wells Memorial, are more or less entirely dependent upon the doctor, who gives his services and has continued to do so for years, for nothing. Then he contributed his money to the Community Fund. The man who makes such an asinine statement as this man made will do the Community Fund more harm than any good he may accomplish in anything else. A physician is on record as saying that when he had charge of two buildings he and his associates were commended for the liberal contributions from physicians.

Of course, the Community Fund has been criticized, but most of the criticism dates back from the initial effort in a community drive during the war period, when it was more or less a matter of assessment, while now it is wholly a matter of voluntary contribution. The fund will need all of the money it can get, and it is to be hoped that everyone has assisted who can, and those who have not will surely be given an opportunity.

CORRESPONDENCE

IN THE GERMAN CLINICS

Paris, November 4, 1922.

To the Editor:

I am in receipt of your letter with reference to study in Germany, but I am afraid my information would be insufficient except to those who may wish to take pathology. My information as to the other branches is limited to my visits to the different clinics in Germany and Vienna.

Frankfurt University has about three thousand beds and averages seven post-mortems a day. The student assists for one month, and then he does his own "posts," examining both macroscopically and microscopically, then demonstrating his case the following morning. There are four lectures of one hour each and two lantern-slide lectures of two hours each every week by the director.

Their surgery is good, but perhaps not up to our ideas of asepsis. This department is open to all who wish to visit and take the ward-walks, but the privilege of an assistantship is given to outsiders only by the exchange of that courtesy. Dr. Ochsner, of Chicago, has one of his assistants here under that method, the assistant getting the regular salary allotted to that post.

The courses are all in German, none of the men here understanding English. There were no other Americans taking pathology, but we had quite a few Italians and Japanese taking advantage of it. It is amazing to see the large numbers of Japanese medical students throughout Germany.

A charge of $5.00 is made for the pathological work, but it is waived for Americans now, there seeming to be a disposition for friendliness. This was not only apparent at the school, but throughout Germany. This may seem strange in view of the extra taxes levied on hotel and opera rates to foreigners, but I do not believe the people favor these assessments, and then, after all, the purchasing power of the dollar is so great here that the extra outlay is trifling.

Living conditions are good and ridiculously cheap in price for Americans. They prefer payment in dollars. The charge for a room with a bath and very good board is about seventy-five cents a day. In Vienna, on the contrary, the prices are very high and at this time are perhaps somewhat higher than in Minneapolis. Study conditions in Vienna are good, the lectures being given in English, and a charge of four or five dollars an hour is made, this charge being divided up amongst the members of that particular class.

The condition of the medical profession in Germany and Austria is very bad. Under the Government insurance plan in Germany a doctor gets the equivalent of about one cent for an office call and less than three cents for a home call, with about ten cents for confinement work. Suffice it to say, they make their rounds on foot or bicycle if it has not been levied on by the Government for payment of overdue taxes. Prices go up with the falling mark, but they cannot keep pace with it.

One may ask how the hospitals can exist under these conditions. Each city in Germany now prints its own money, this currency being good in that community only. For instance, Frankfurt prints its own marks—good only in Frankfurt; and as the Hospital is a city affair, it can take care of its local obligations with the printing press; but on outside things they cut as much as possible. The orthopedic buildings are being closed for the winter because of coal prices. Rubber gloves are used sparingly or not at all; linen replaces catgut; and in this way they expect to get along until the mark is stabilized.

Sincerely yours,

Harley J. Gunderson, M. D.
Minneapolis, Minn.

BOOK NOTICES

The Writing of Medical Papers. By Maud H. Mellish, Editor of the Mayo Clinic Publications. 12mo of 157 pages. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, $1.50 net.

The writing of medical paper is worth while for every physician, and it is worth while for many reasons. It sends one anew to his textbooks and to the periodical literature on the subject treated, thus making definite and tangible his information on any subject dealt with, clarifying his knowledge as no other process can clarify it. If one writes a couple or more creditable papers a year and presents them to a medical journal or before a medical society he enhances his reputation in some degree, depending upon the care with which he prepares his work.

If one has not done some writing in his college course, he may not write easily, but if he is a real student of medicine, before and after graduating he will find many things, common and uncommon, upon which to concentrate his attention and enable him to discuss them intelligently, put them into the form of a paper, and profit by them in his practice.

As an aid to writing a good paper, in comment to novices and to those who write occasionally, as well as to those who write much, the handbook of Mrs. Mellish is the best book of its kind that has come to our attention.

As the editor of the Mayo Clinic publications, Mrs. (Dr.) Mellish has had an unusual experience, inasmuch as she edits annually a large number of papers, and she edits them with a free hand, that is to say, she makes them conform to both literary and technical standards of the best writers.

In her handbook she tells writers what ends to accomplish, technically, in a medical paper, and she points out the pitfalls that many well-known authors fall into.

Too high commendation scarcely can be given to this work.

Diseases of the Skin and the Eruptive Fevers. By Jay Frank Schamberg, A.B., M.D., Professor of Dermatology and Syphilis, Graduate School of Medicine, University of Pennsylvania, etc. Fourth Edition, thoroughly revised. Octavo of 626 pages, 265 illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $5.00 net.

The exanthemata have so important a place in this work that the title might almost be reversed. Although nowadays the eruptive fevers are included in most books on skin diseases, their consideration is seldom so extensive as here, and the pediatrist will find almost as much to interest him as will the dermatologist, particularly as the story of the contagious diseases of childhood is told unusually well. It is a novelty to find the scope of eruptive fevers extended to include such general conditions as influenza and rheumatic fever, where skin lesions must be regarded as the exception rather than the rule.

The reviewer notes with interest that Dr. Schamberg gives little encouragement to those who find vaccination a frequent source of skin eruptions. It is a generally accepted rule that it is best, if possible, to avoid vaccinating a child with an active skin disease. The author says: "While I would not elect to perform vaccination upon a child suffering from eczema, I should not consider the latter condition a sufficient contraindication if smallpox were prevalent." As eczema is the disease which in this connection the doctor fears most of all will be aggravated by vaccination, this is a comforting statement from a specialist in dermatology. There is no situation where control statistics are more lacking than in the estimate of the relation of alleged sequelæ and the preceding vaccination. Any disorder following vaccination, even months afterwards, is likely to be attributed to the inoculation without attempting to determine the percentage of its occurrence among the unvaccinated during the same period of time.

These lengthy comments upon the part of Dr. Schamberg's work devoted to the exanthemata should not lead to the conclusion that there is nothing else worth while. On the contrary, there is an exceptionally good account of the other skin diseases, common and rare, and an account that will appeal to the general practitioner particularly because there is no padding, and the descriptions are as condensed as is consistent with making the picture plain. Although there are no colored plates, the numerous illustrations are unusually clear.

—W. Davis, M.D.

NEWS ITEMS

Dr. James F. Dixon, of Deering, Mo., has located at Carlton.

The Western Surgical Association's annual meeting will be held in Minneapolis on December 8 and 9.

Dr. Husted, of Omaha, Neb., has located at Marmarth, N. D., which village has long been without a physician.

A beautiful site has been purchased for the new hospital at Wadena, to be built and conducted by the Methodists.

Dr. R. R. Parker, of Missoula, Mont., has been appointed by the Government a special consultant of the U. S. Public Health Service on leprosy.

The Hennepin County Medical Auxiliary gave a public concert last week to raise funds for work among tuberculous patients in Hopewell Hospital.

Dr. T. H. Dedolph has returned to Braham after four years' absence, and has resumed practice, entering into partnership with Dr. Swenson.

Dr. S. Marx White, of Minneapolis, spoke at a meeting of the Steele County Medical Society on November 14, the meeting being open to the public.

Dr. B. C. Goode, of the Nopeming Tuberculosis Sanatorium staff, has accepted a position on the staff of the Craigmore Sanatorium at Colorado Springs, Col.

Dr. C. E. Hamel, of Minneapolis, has just returned from Europe, where he has been doing eye, ear, nose, and throat work, especially in Germany and Austria.

Physicians who contemplate early visits to the clinics of Europe will find on another page a letter of special interest, from a recent visitor to Germany and Austria.

Progress in raising funds for the Trinity Hospital at Minot, N. D., has been very encouraging, and work on the part of the building under construction is being pushed.

Drs. Karl Dedolph, Louis Ramley, and Lillian Nye, inspectors in the St. Paul public schools, resigned when the salaries of the medical inspectors in the schools were reduced.

Dr. Harley J. Gunderson, of Minneapolis, has returned from Europe, where he took special work in pathology. A letter from him concerning medical conditions in Europe will be found on another page.

Dr. Mary Hill Jennings, a recent graduate of the Woman's Medical College of Pennsylvania, has located in Minneapolis. She passed the examination of the National Board of Medical Examiners at their last meeting.

A State tuberculosis sanatorium for Wright, McCloud, and Meeker Counties (Minnesota) seems assured by the public sentiment in these counties. A $100,000 building will be required to meet the needs of the district.

St. Paul is to have another (second) annual Child's Health Day in February. All phases of child health, "from diet to discipline," will be discussed. Child health experts of national reputation will be among the speakers.

The Methodist State Hospital building at Mitchell, S. D., is to have another addition, 26x30 feet and three stories high. This will give the hospital a new operating-room, an obstetrical department, and additional hospital beds.

The Post hospital staff at Ft. Snelling (Minn.) has a new medical member in the person of Major Francis Strong, transferred from California. He succeeds Major J. W. Meehan at Ft. Snelling, the latter going to Fort Crook.

The State Board of Health of Montana is carrying on mother and child consultation clinics. The Board's nurse (Mrs. Ann Waring)) and volunteer local physicians do the work. This is for children under school age, and their mothers.

The date and place of the next annual meeting of the Minnesota State Hospital Association has been decided upon by the executive committee. The meeting will be in Minneapolis in May, 1923, on the same days that the Tri-State Hospital Association meets here.

A smooth swindler recently operated among the physicians and dentists of St. Paul. He first appointed his victim to a promising lucrative position as examiner in a local lodge of the "International Union of Stationary Firemen and Oilers," and then "touched" him.

Dr. O. W. Parker, of Ely, the newly elected president of the St. Louis County Medical Society, presided for the first time at the November meeting of the society, held in Duluth. Dr. J. W. Ryan, of Morgan Park, and Dr. Hilding Anderson, of Duluth, read papers.

Dr. E. W. Fahey, health director of Duluth, has asked that city to "modernize" its health department. He names 10 points needing attention, and requests that the city give the department $235,000, instead of $51,000, the present appropriation. That's going some!

The next monthly meeting of the Hennepin County Medical Society will be held on December 11, instead of on the regular date, December 4. The change of date is made on account of the meeting of the Southern Minnesota Medical Association at Mankato on that date.

Dr. F. M. Pottenger, director of the Pottenger Sanatorium at Monrovia, Calif., was in the Twin Cities last month, when he spoke several times before the medical societies on tuberculosis. Dr. Pottenger spoke also before the staff of the Lymanhurst School for tuberculous children.

The Ladies' Auxiliary of the Ramsey County Society was reorganized last month, and the following officers elected: President, Mrs. Harry P. Ritchie; first vice-president, Mrs. Frank E. Burch; second vice-president, Mrs. Robert Earl; recording secretary, Mrs. E. C. Eshelby; corresponding secretary, Mrs. C. K. Williams;

treasurer, Mrs. Sherman S. Hesselgrave; auditor, Mrs. Harry Zimmermann.

At the noon-day meeting of the Hennepin County Medical Society on November 15, Dr. F. F. Pottenger, of the Pottenger Sanatorium of California, spoke on the "Modern Treatment of Tuberculosis in the Child and the Adult," and the subject of "Suitable Music for the Sick and Convalescent" was demonstrated by beautiful and suitable music by Mr. and Mrs. McPhail and Carlo Fischer, of the McPhail School of Music.

The North Dakota State Department of Health announces that Dr. Louisa E. Boutelle has been appointed Director of the Division of Child Hygiene and Public Health Nursing. Dr. Boutelle's addition to the staff of the Board is made possible by the terms of the Sheppard-Towner Act, the provisions of which have been accepted by the State of North Dakota. Dr. Boutelle is a graduate of the University of Minnesota and has lately been engaged in the practice of medicine in Clear Lake, South Dakota.

National Cancer Week, Nov. 25-Dec. 2, was marked in the Northwest by an educational program more intensive perhaps than that accompanying any past health campaign. Minneapolis, St. Paul and Duluth had organized the campaign as never before, and other leading cities of the Northwest did likewise. Even in the smaller cities and villages the week was observed by helpful meetings. The fact that the number of deaths in this country from cancer was 14,000 greater in 1921 than in 1920, shocked the medical men of the country.

For the purpose of fostering a better understanding between the branches of curative and preventive medicine the North Dakota State Department of Health has been sending speakers to all of the district medical societies in the state. Already seven district society meetings have been attended and full public health programs provided. The attendance at these meetings has been unusually good and the interest manifested by the physicians in the state's public health program very keen. Two speakers from the department have appeared on the programs. Dr. H. E. French, State Health Officer, has explained the plan for improving the State Health Department, while Dr. Robert Olesen, Acting Director of the Division of Preventable Diseases, has advocated whole-time county health organizations. Later it is expected that Dr. Louisa Boutelle, newly appointed Director of the Division of Child Hygiene and Public Health Nursing, will also speak before those district medical societies which have not yet been visited.

A MODEL PROGRAM

The following is the program of a meeting of the Hennepin County Medical Society held on November 22. It is a model, at least, as regards the lengths of the talks. The subject is "Carcinoma of the Uterus."

1. Diagnosis of Carcinoma of the Uterus, by Dr. A. W. Abbott.
2. Pathology of Carcinoma of the Uterus, by Dr. J. H. McCartney.
3. Causes and Prevention of Carcinoma of the Uterus, by Dr. W. H. Condit.
4. The Surgical Treatment of Carcinoma of the Uterus, and Results, by Dr. F. L. Adair.
5. The X-ray and Radium Treatment of Carcinoma of the Uterus, by Dr. F. S. Bissell.

PROGRAM OF THE SECOND ANNUAL CLINIC,
Mitchel, S. D., Dec. 5 and 6.

Radium in Pelvic Diseases of Women—Dr. Leda J. Stacy, Rochester, Minn.

Abdominal Pain in Acute Upper Respiratory Infections in Children—Dr. Newell Jones, Omaha, Neb.

Mild Forms of Diabetes Mellitus: Symptomatology and Recognition—Dr. George Douglas Head, Minneapolis, Minn.

Orthopedic Surgery of the Upper Extremities —Dr. Arthur Steindler, Iowa City, Ia.

The Treatment of Placenta Previa—Dr. L. W. Barry, St. Paul, Minn.

Fracture about Joints, Ankle, Shoulder and Wrist—Dr. B. F. Lounsbury, Chicago, Ill.

Early Signs of Some Common Eye Diseases—Dr. James M. Patton, Omaha, Neb.

Some Problems in the Surgery of the Gall-Bladder and of Ulcer of the Stomach—Dr. John E. Summers, Omaha, Neb.

Experience with External Bone Fixation—Dr. N. O. Ramstad, Bismarck, N. D.

TOPICS TO BE DISCUSSED BY MEMBERS OF THE HENNEPIN COUNTY MEDICAL SOCIETY DURING "MINNEAPOLIS WEEK"

1. What the Public Health Association, in Conjunction with the Hennepin County Medical Society is doing to Conserve the Health of Minneapolis Citizens.

—Dr. Mabel Ulrich

2. What Minneapolis is Doing in Co-operation with the State Board of Health in the Prevention and Treatment of Venereal Disease.
—Dr. H. G. Irvine

3. What Minneapolis is Doing for the Deafened and to Conserve Hearing.
Dr. Horace Newhart

4. The Sight Saving Classes of the Minneapolis Schools.
—Dr. Douglas Wood

5. What the Dispensaries are Doing for the People of Minneapolis.
—Dr. C. B. Wright

6. The Economic Value of the Hennepin County Medical Society to Minneapolis.

7. What the Hennepin County Medical Society is Doing to Educate the Citizens of Minneapolis on Health Matters.
—Dr. J. S. Reynolds

8. What the Profession is doing to Protect the Public by Proposed Legislation.
—Dr. Henry Wireman Cook

9. What the Medical Profession is Doing in Minneapolis to Treat and Prevent Tuberculosis.
—Dr. S. Marx White

10. What the Board of Health is Doing to Protect the Citizens of Minneapolis Against Disease.
—Dr. F. E. Harrington

PHYSICIAN WANTED

One who is not inclined to do major surgery to locate about thirteen miles away in neighboring town of about 1,000 (competition light), with the idea of co-operating with a surgeon who has an up-to-date hospital. May be called on to give anesthetics and assist in major surgery. Address 297, care of this office.

PRACTICE FOR SALE

An excellent general practice goes to the purchaser of my office equipment, drugs, etc. In best part of South Dakota. Population, 700. One other physician. Competition is ethical and congenial. Your personality and physical ability determine how much you will do. Reason for selling, have accepted supervision of small rural hospital in same state. Purchase of property is optional. Investment required is $1,000. If looking for a good location of this kind, come and take it, I do not care for any correspondence as I am sure this will go quickly. Dr. G. A. Lierle, Spencer, South Dakota.

PHYSICIAN WANTED

House Physician wanted for institution specializing in rheumatism, 20 miles south of the Twin Cities. Excellent opportunity for right man. For particulars and salary apply to Mudcura Sanitarium, Shakopee, Minn.

PRACTICE FOR SALE

In a village of 700 about 70 miles from the Twin Cities, unopposed, wealthy community. City water, electric lights, etc., fine school, largely German community. Business over $6,000; can be increased to $10,000 by doing some surgery. Residence for sale; no charge for practice, leaving state. Address 302, care of this office.

MINNEAPOLIS SANATORIUM FOR SALE OR LEASE

A well-equipped and well-established Sanatorium in Minneapolis is offered for sale or lease, Capacity about 20 beds. Two registered nurses could make it pay for itself in a short time. Address 308, care of this office.

PRACTICE FOR SALE

In town of 1200, county-seat, in south eastern South Dakota. Only one other doctor. Rich farming community. Price for office equipment and practice, $200. Practice nets $5,000, and could be doubled with surgery. Address 309, care of this office.

ASSISTANT WANTED

Wanted—assistant to help in surgery and take desirable opening in good unopposed neighboring town. Must be a live man, Scandanavian preferred. Practice should go $5,000. Good graveled roads. Minnesota license required. Address 307, care of this office.

POSITION

Wanted—A recent University of Nebraska graduate with two years internship and a good surgical training desires a location or association with hospital facilities. Licensed in Minnesota. Age 30. Mason. Highest of references. Address 305, care of this office.

UNOPPOSED PRACTICE for SALE

Prosperous town of 500; Nearest competition, 14, 18, 20 miles; good roads; good Schools; German community. New modern home to rent; collections, 98%. Will sell for price of drugs and office furniture. $400.00 Address 303, care of this office.

WANTED—POSITION as LABORATORY TECHNICIAN and PRIVATE SECRETARY

By a thoroughly competent and experienced young woman with best of city references. Address—306, care of this office.

WANTED

Woman physician, graduate of the Woman's Medical College of Philadelphia. One years experience as interne in Philadelphia hospital and three months practice, also in hospital, desires location in Minneapolis, either sharing office or as assistant to Doctor. Best of references. Address 301, care this office.

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THE CANCER PROBLEM IN SOUTH DAKOTA*

BY FINN KOREN, M.D.
WATERTOWN, SOUTH DAKOTA

Last year in the United States there were 1,400,000 deaths, and of this number 100,000 deaths were due to cancer. This averages 1 death in 14. In South Dakota last year we had 5,551 deaths, and of these about 400 were due to cancer. Cancer was the fourth factor on the list as the cause of death in South Dakota. The cause of cancer is not known. There are three theories: Conheim's theory, of misplaced embryonal cells; Rebbert's, of misplaced embryonal and misplaced adult type of cells; and the parasitic theory. None of these, however, will account for malignancy in all its phases.

When we look at its geographical distribution, we find that it pervades the world. It is found not only in pelagic form of life, but also in many land animals. In Tasmania they raise many trout, and in some seasons they find fully 10 per cent of the trout have cancer of the gills. Cancer is rare among wild animals, but it is not rare among domesticated animals. The dog is a frequent victim of cancer. The horse not infrequently experiences melanotic sarcoma of the skin. The cow more infrequently develops squamous-celled carcinoma of the eyelid. Rats and mice are very frequent sufferers from cancer. Cancer in the animal world follows a distinct type of development for each species; the gills of the fish; breast tissue of the mouse and rat; lymphatic system of the birds; and the alimentary tract of the human being are most frequently involved.

As for the race of mankind, cancer is found among all tribes, but it seems to increase step by step with civilization. It is most prevalent in the white race. When a primitive race assumes the habits and diets that approximate those of a civilized race it develops a higher cancer incidence. In the white race the older the race and the higher the average of living standards, the greater the cancer incidence. This also holds good for city versus country. In some nations the city death rate from cancer is twice that of the country death rate. Paris, for instance, has an annual death rate of about 121 per 100,000 inhabitants, while the smaller cities of France, those that count from five to ten thousand people, have a death rate of 74 per 100,000.

Cancer probably has its etiology in different forms of irritation: 1. Chemical irritation, as produced by soot, tar, paraffin, and tobacco. These are all producers of a local type of epithelioma. Then, we have physical irritation, such as weather; *x*-ray and benign skin growths, such as warts, nevi, and pigmented areas; also physical irritations of the skin, such as lupus, eczema, and psoriasis, and tissue irritation due to old infected wounds, sinuses, ulcers, and trauma; of the mouth, dental caries and leucoplakia. Deep trauma may cause cancer of the breast, bone, testis, and cervix.

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*Presented at the forty-first annual meeting of the South Dakota State Medical Association, Huron, S. D., May 17 and 18, 1922.

The following are predisposing factors: race, sex, and age.

Age has a distinct bearing on cancer incidence. It is more frequent between the ages of 60 and 70, which decade furnishes 39.45 per cent of all cancers. The next more frequent decade is from 70 to 80 years, which furnishes 36 per cent of all cancers; while the years of 80 plus furnishes 26 per cent of all cancer. There is little cancer up to the thirtieth year, but from then on it increases rapidly up to 70 in men and up to 80 in women. Nine-tenths of the malignancy preceding the age of 30 is sarcomatous, while nine-tenths of the malignancy following the age of 30 is carcinomatous.

The above data show that the ages between 60 and 80 experience the highest cancer incidence. And after the age of 70 in men and 80 in women, cancer rapidly diminishes in frequency. It is a rare case when an individual over 90 dies of cancer.

Sex also has a bearing on cancer frequency. The latest figure is that of 1.3 per cent female versus 1 per cent male. This greater cancer incidence in female is due to the frequent involvement of the breasts and the uterus. It is almost universally believed that cancer is not hereditary, but that there is a predisposition which may be inherited. It is also a well-known fact that there is a spontaneous cure of cancer. I, myself, have witnessed two cases that cannot be explained any other way except by "cancer in a state of involution." It is interesting to note that when the Africans were first brought into a state of slavery to America, cancer incidence was low, but as slavery was abolished the blacks' habits and mode of living approximated that of the whites, and cancer increased until to-day it is only slightly less then that of the white race in America. The same is true of the Australian blacks. In Australia we find the native blacks of over 35 years of age have 81.3 cases of cancer per 100,000. But before their habits and mode of living approximated those of the white people of Australia it was thought their cancer incidence was less then 35 per 100,000; while those of British birth have 490 cases to 100,000, and the foreign-born have 351.

It is a striking fact that 72 per cent of carcinoma in the human race is along the alimentary tract. Roughly estimated, it is 10 per cent in the mouth, 15 per cent in the rectum and colon, and 44 per cent in the stomach, liver, and pancreas, and about 3 per cent in the esophagus and small intestine.

TREATMENT

The medical world is rapidly turning its attention to the prophylactic treatment of cancer and its early recognition. Countless years of hard experience in dealing with cancer in its later stages have proven, beyond dispute, that the world possesses no curative means in terminal cancer conditions; therefore it remains to attack the problem in its earliest stage, that is, by really prophylactic treatment. In order to do so successfully there must be co-operation between the medical profession and the laity. The medical profession must be taught what constitutes precancerous lesions, and the laity must be taught the same and also to come early for treatment of the precancerous lesion. This will require a program of education for both physicians and the laity; and it will be to the interest of the medical profession and all concerned to apply any method which will reduce the cancer death rate.

In an endeavor to aid cancer prevention we find that we are absolutely dependent upon that voluntary aid which is given by others in the medical field. And in reviewing the situation of other sociomedical interests we find that they, too, find a virgin field. The working structure that is required must be built from the ground up. It is the ambition of the medical profession to be a leader in its chosen field, not only a leader but, indeed, to fill the whole field. If that wished-for goal is to be reached the medical profession must do more than treat medical disease as found: it must aim to fill the whole field and to meet the entire need of the healing art. It *must* not only fill the needs of the individual cases, but it must forestall disease, developing the field of preventive medicine, that powerful factor for national health which is practically neglected in our land and especially so in our state. The next century will surely see medical functions transferred from the healing to the prevention of disease. So great is the need and so urgent the call that civic bodies are arising on every hand trying to do the work that medical men should do.

In the line of preventive medicine we find that there is no direct connection between the South Dakota Medical Association and county hospitals, school work, cancer prevention, antituberculosis work, sexual hygiene, and several other departments of medical sociology. Surely, the medical profession would be held in higher esteem if the average follower were less individualistic in his work and aspirations. Perhaps this is a reason why we stand in such lowly light with the Legislature of the State; why we have so poor access to the lay press; and why we are suspected whenever we ask for anything of having an axe to grind. In reviewing the structures of the various State Medical Associations in this country it seems that three Western States,—Washington, Oregon, and California,—have solved many of the above problems satisfactorily. They have determined that preventive medicine is of more use to the laity then it is to the medical men, and still it is an absolute essential if we are to better our present status of 80 per cent physical deficiency. These States have each formed a league for the preservation of health. This league is officered by physicians, but membership is granted to any civic body interested in uplift work, such as hospitals, Red Cross, charitable institutions, drug stores, labor organizations, bankers, etc. Each organization or individual pays annual dues of $25.00 or more, and some pay as high as $10.00 a month for the establishment of a working fund. The chief object of this league is preservation of health and co-ordination of the work of various civic bodies, such as the Red Cross, cancer prevention, infant welfare and school hygiene, with various functions of the State Medical Association and with each other so that there will be a standard method of procedure and no work overlapping. This is accomplished by establishing in each medical district a civic structure that carries on, under the direction of the local medical association, sociomedical work. Co-operation between the local and state Medical Associations, and the local and State League for the Preservation of Health would give us greater power in obtaining the legislation we need. At present our legislative stand is objective.

The State Medical Association being devoted mostly to scientific pursuits finds it very difficult because of its ideals, pursuits, and organizations, to develop sociomedical functions and properly to develop the field of preventive medicine. Therefore, why not call in the public, which will be the greater beneficiary by a proper fulfillment of the above functions? I am sure we shall find the various citizens and civic bodies eager to help in this work as there isn't a healing branch that has as great a backing or as good a standing in our entire land as that of medicine and surgery. Moreover, legislation and publicity, the two departments which require heavy civic and political backing, can be better carried out conjointly than by the Medical Association alone. Such a conjoint body would standardize and elevate public health movements by furnishing organization and financial and political support. Moreover, there would be a broad body of workers to draw from in developing public speakers on definite subjects for presentation to the laity and also they would furnish our local District Medical Societies the enthusiasm which a fixed goal and organization and civic backing would give. In case an organization like this is attempted its functioning should not begin until at least one thousand members have been secured, and $25,000 paid into the treasury. If such an organization could enter into a close and harmonious relationship with the District Medical Society, it would give a terrific impetus in the right direction to all worthy public health movements, and would give the medical profession increased prestige, added legislative power, and access to the public press.

Legislation can be best handled through a joint committee representing the American Medical Association and the League for the Preservation of Health. Another committee representing both bodies should obtain publicity whenever needed. A full-time secretary of both bodies should preside over legislative and publicity matters. Another committee should co-operate in the educational field and see that our schools have the proper financial backing and growth in the proper direction.

HEART FAILURE: ITS EARLY RECOGNITION*

By H. O. Altnow, M.D.

MANDAN, NORTH DAKOTA

INTRODUCTION

One may well hesitate to offer a paper on the consideration of any part of the subject of heart disease before this Association, especially since in the last few years we have been favored by the discussions of various phases of this subject by men of large experience in, and devotion to, this particular field of medicine.

The scope and purpose of this discussion on the early recognition of heart disease is to point out how the general practitioner,—and the majority of us are general practitioners,—may improve his methods of cardiac diagnosis and recognize the disability of this important organ in its beginnings. To some of you who have interested yourselves in heart disorders, the subject matter of this paper will appear elementary; but in the diagnosis of heart disease simple methods many times suffice if their value is appreciated. As before stated, this paper is written from the viewpoint of the general practitioner by one who has no more facilities for diagnosis or clinical aptitude for this work than every one of you possesses. If we realize this fact, that nothing more than an attentive ear to the history and stethoscope are necessary to make a diagnosis in heart disorders in the great majority of cases, our diagnosis and subsequent management of these cases can be greatly improved. This can be accomplished without the help of the more complicated mechanical adjuncts in heart diagnosis, such as the polygraph, the electrocardiograph, and the Röntgen ray.

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*Presented at the thirty-fifth annual meeting of the North Dakota State Medical Association, Jamestown, N. D., June 1 and 2, 1922.

Sir James McKenzie, in an address before an American audience some four or five years ago, said that up to that time the man with heart disease found himself in a most disadvantageous position. He was being handled wrongly because of the fact that, during the years that the disease was developing and could be corrected, he often saw only the man who did not appreciate the importance of his symptoms and did not come to the clinic to consult the heart specialist until his heart condition was irreparable.

When a man of fifty years of age or thereabouts comes to us and puts his hand over his precordium and makes the statement: "Doctor, I have a pain here, and am afraid it is my heart" —if there are any of us who ask him only to unbutton his shirt and with the stethoscope listen to his heart, and then assure him that there is nothing the matter, it is an infallible sign that our methods in the diagnosis of heart disease admit of great improvement.

In cardiac diagnosis in the last two decades prior to this one, the recognition of structural changes was given place of marked prominence. This was in accord with the tendency and teaching of that period. This was true also of the diseases of the other systems, as the pulmonary, gastro-intestinal, and renal systems. The development of the science of pathology, the clinical laboratory, and the many mechanical aids in diagnosis, especially the Röntgen ray, brought about this condition.

THE DIAGNOSIS OF EARLY CARDIAC FAILURE

The primary symptoms of heart disease may be classified into three main groups, namely: (1) Structural symptoms, as size, shape, position in chest, murmurs, and the irregularities; (2) Functional symptoms, as shortness of breath, edema, râles in lungs, etc., that indicate that the circulation is not being maintained; (3) Reflex symptoms, as precordial pain and chest pain on exertion and anginal attacks.

In the past these symptom groups have been assigned the place of importance in the order just enumerated, but a more correct order as it applies to their value in diagnosis would be the reverse. It might be stated, however, that there is an individual difference in cases, and that in some the earliest symptoms are the functional ones, and the reflex symptoms are not prominent, while in other cases the opposite condition holds true.

The cases with marked functional symptoms as they develop usually give rise to cardiac failure with edema (wet or congestive heart failure); while the cases with marked anginal symptoms produce cardiac failure without edema (dry heart failure). The first and the two most important symptoms that constitute the warning of the presence of heart failure are due to the limitation of the reserve force of the heart and they are dyspnea and cardiac pain following an exertion of the kind that prior to that time could be undertaken without the production of these symptoms. It is on the proper interpetation and evaluation of these symptoms that early cardiac diagnosis rests.

It will not be out of place to consider the origin or basis and method of production of these important symptoms.

Dyspnea, or breathlessness, is the earliest and most constant symptom of disordered heart function. Before accepting it as unqualified evidence, however, one must be careful to rule out other conditions that might produce it, such as the pulmonary affections, stenosis of the air passages, anemia, and the renal disorders. The reason for its almost constant occurrence in heart disease, and just why it is so strikingly produced following effort, are not clearly understood; but two factors are probably responsible for its production. The first factor is the increased CO_2 content in blood and tissues, due to defective circulation, causing stimulation of the respiratory center. Increased CO_2 pressure and dyspnea seem to go hand in hand. It is an interesting fact also that cyanosis or anoxemia as occurs as a result of partial atelectasis or in bronchial obstruction, may be of quite extreme grade, and not be associated with dyspnea. Dyspnea and cyanosis, then, are often disassociated symptoms. The second factor in the production of dyspnea is the diminished vital capacity of the lung. Diminished vital capacity of the lung is due to encroachment of the alveolar spaces or air content of the lung by engorgement or congestion of the pulmonary vessels. Diminished vital capacity is an early finding, and this diminution increases in direct proportion to the increase of cardiac disability. We are indebted to Peabody for the method of determining the vital capacity of the lung and using it as an index of the functional capacity of the heart. A practical demonstration of this phenomenon may be seen in almost any heart case following exertion. This produces the peculiar gasping respiration of air-hunger, and, if the patient is intelligent and is asked why he breathes so hard, he will invariably answer that it is because he cannot get the air down into his lungs. Explained on the basis of alveolar encroachment the reason for this always striking symptom is clear.

Two other functional signs are of at least confirmatory value in the recognition of heart disease, and they are râles in the posterior or lower lobes of the lung and edema. Râles in the posterior or lowers lobes when not associated with râles in the upper or anterior lobes, are almost always due to pulmonary congestion, and very rarely due to tuberculosis. In suspected cardiac failure they should always be looked for, and it can be said without fear of contradiction that one can gain more information with the stethoscope as to the heart's function by listening to the back rather than to the front of the chest. In eliciting this sign in doubtful cases it is well if the patient has been in bed, to ask him to sit up, and to put the stethoscope over the extreme base of the lung near the vertebral column on the side that the patient has last lain on and to ask him to take a deep breath. It is surprising how often one will hear moist râles under these circumstances. In ambulatory cases the side first examined is probably immaterial. If the patient is asked to breathe deeply before one applies the stethoscope to the base of the lung, the superventilation of the lung may cause the râles to disappear. It should be remembered that the above sign is to be accepted as a confirmatory sign, and only at its proper value.

General edema may or may not be an early symptom of heart disease. A patient may go on to advanced cardiac failure with little or no edema. Why this variation exists is not satisfactorily explained. Probably the degree of the permeability of the terminal vessels plays a part. In acute nephritis, which has not a gravity edema, the increased edema of the face is supposed to be due to the toxins resulting from the defective elimination acting on the endothelial cells of the terminal vessels of the face, increasing their permeability. Whether a toxic influence of this kind exists in some cases of heart disease is a matter of conjecture. The idea that increased permeability of the terminal vessels is a factor, has some clinical evidence to support it. Edema is more commonly found in the dilated heart with the weak musculature. On the other hand the heart failure due to coronary sclerosis and degeneration, which is likely to be combined with systemic arterial degeneration, is quite apt to be of the dry type without edema. Chloride and water retention by the kidney may also be a factor.

The reflex symptoms occurring in early cardiac failure are usually pain and a feeling of distress following physical effort. This is often followed by an area of cutaneous hyperalgesia over the precordial area. This is not a primary pain, but is a viscerosensory reflex. The reflex originates by dilatation or exhaustion of the heart, and it sends in stimuli to the cord through the afferent fibers of the sympathetic system. These, in turn, stimulate the sensory centers of the first, second, third, and fourth dorsal segments. The details of the results produced will not be elaborated here. It is enough to say that pain and distress in the chest following physical effort should always be given due weight in diagnosis, and their occurrence is often the first intimation that there is a serious circulatory disability or even disaster impending.

The structural symptoms, such as enlargement, alteration of shape, presence of murmurs, the irregularities and rate disturbance, are to be thought of as confirmatory evidence, rather than early diagnostic signs, although in some cases they may be the first signs of heart disease.

If the heart is doing its work properly, and has a good reserve, the presence of a murmur may mean little or nothing.

The important position that the functional and reflex symptoms occupy in diagnosis cannot better be summarized than to quote the following from McKenzie's "Interpretation of Symptoms," which runs as follows: "It will be frequently found that patients whose hearts show many forms of functional and structural abnormalities (valvular murmurs, cardiac enlargement, irregular action) have such a store of reserve force that they can pursue laborious occupations with ease and comfort, and live to a good age. On the other hand, patients may show no physical sign of abnormality, the heart may be normal in size, rate, and regular in rhythm, and the sounds be clear and free from murmur: but the reserve force may be so small that the slightest exertion entails at once distressful symptoms of heart exhaustion and the lives of these persons may be very precarious."

CASE-REPORTS

The following cases are cited as examples of early cardiac failure and have been selected to illustrate different modes of onset and writers' conception of early diagnosis:

Case 1.—Male, aged 60, laborer, has always been well. Ten days ago he was unloading a car of coal. The day was hot, and the patient drank a considerable amount of cold water, and worked harder than usual. Suddenly he felt epigastric pain followed by substernal oppression and pain. Later in the day he felt pain over the precordial area. Since then he has not felt well, and work and exertion bring on substernal and precordial pain; but so far he has had no exertion or night dyspnea.

Examination: Pulse rate, 72; normal blood pressure, 168-94. Cardiographic tracing showed practically a normal outline. Auscultation, negative; crackling râles were present in the left base, none in right. After a three-months lay off, the patient felt well and the râles disappeared, but they were present over two months.

Comment: A common type of heart failure, due to beginning cardiosclerosis of advancing age. History of cold water drinking and overheating with epigastric pain at onset easily leads to a mistaken diagnosis of acute indigestion. Both of the above may contribute to heart failure, and we all know the bad effects of overloading the stomach in the cardiac patient. Many of the cases of deaths of our prominent men at this age of life that are chronicled as due to acute dyspepsia are probably due to heart failure.

Case 2.—Male, aged 63, car repairer. Past history only feature of importance; two years ago had extraction of all teeth which were badly infected. Last four years has done very light repair work on freight cars equal to light carpenter work. Four or five days before the patient came to office, was transferred to a new job that required him to perform duties of a regular car repairer. The first day he did sledging with a fifteen pound sledge, driving in rods. He worked at this for an hour; he suddenly experienced a sharp pain in the region of the heart and fell over backward, dropping his sledge. He laid off that night and slept scarcely any, and did not sleep well for the next four nights.

Examination: Pulse, 82; blood pressure, 166-98. Heart outline and auscultation, negative. No râles in bases. Skin over entire precordial area between second and sixth ribs and sternum and anterior axillary line is hypersensitive to pain stimuli, touch, and pressure. The patient on advice took a three months' vacation. During this time the area of cutaneous hyperalgesia diminished gradually, so that at the end of that time it had diminished to 4 cm. in diameter, and was over the left nipple area.

The patient volunteered the following very interesting information. A few days ago while cleaning the yard he tried to pull up a post that refused to come up. He exerted himself more than he had since laying off from work. Almost immediately he noticed a marked increase in the size of the area of precordial tenderness. He stopped working on the post at once, and in a few hours the area came down to its normal size. During his vacation he had gained eight pounds and looked well, and he returned to his lighter occupation, the duties of which he has performed since without difficulty.

Comment: This case in etiology is similar to Case 1, and shows the deleterious effect of unaccustomed exertion. It also illustrates the viscerocutaneous reflex as the prominent first symptom. The pain in this instance was severe enough to protect this individual from doing himself any considerable damage when he was acquainted with the significance of the symptom.

Case 3.—Male, aged 63, trucker. Past history, not noteworthy. For the last five years he has had attacks of palpitation four to six times a year, which were of short duration and followed exertion when the patient was overtired. They were never accompanied by dyspnea. Last night he had his hardest attack to date, which lasted an hour. He had to sit up in bed because of dyspnea. He has been feeling weak today, and every once in a while his heart flutters.

Examination: Temperature, 99°; pulse, 88; blood pressure, 132-90; pulse, uneven in volume and force, and absolutely irregular; pulse at apex by stethoscope, 114; pulse deficit, therefore, 26. No murmurs; râles in both bases. Cardiographic tracing shows enlargement of right heart, especially the auricle, and left auricle also enlarged, giving a peculiar S shape to the aortic shadow. Tea, coffee, and tobacco were forbidden, and the patient was digitalized with infusion digitalis (Minnesota leaf), six tablespoonfuls a day for four days. At the end of week the pluse was 62, strong and regular. Auscultation shows heart beats to be regular, strong, and normal. There is no pulse deficit, and râles have disappeared. At end of month all was well. The patient had resumed work, but had been relieved of the work of heavy lifting. On account of undesirability of taking anything that might increase the heart irritability, he was requested to refrain from tea, coffee, and tobacco, but he still uses a little of the latter. For the last nine months he has worked every day and has had no difficulty; and an examination a week ago showed the heart to be perfectly regular.

Comment: A typical auricular fibrillation of unknown etiology with the classical response to digitalization. A history of several years of attacks of palpitation precede the auricular fibrillation. Patients with palpitation should not be dismissed by being told it is a nervous manifestation and nothing serious. Palpitation is caused by an irritable focus in the ventricular muscle and may be the forerunner of a more serious conduction disturbance, as it was in this case. One authority states that an auricular fibrillation of two to three weeks' duration is permanent; if this is the case this patient had a serious cardiac condition postponed.

Case 4.—Male, aged 26, athletic instructor. Past history two attacks of pneumonia as a child, measles, and typhoid fever during adolescent period; mild sore throat on one or two occasions. Active in athletics since 1916; at one time some years ago he was doing heavy lifting and felt weak sensation and almost collapsed. He felt pain in the heart area and was tired out for an hour or two afterward. Another time he was lifting on a wagon box, and at that time had to gasp for breath. Outside of that he was free from symptoms until four years ago, when he occasionally had sharp pains of short duration in the chest. These usually occurred when the patient was lying down and disappeared on arising. In the last three to four days pains have been much more frequent. While lying on the couch yesterday morning he had one pain that made him jump up and land in the middle of the floor. Deep breathing has been interfered with, but there has been no dyspnea or radiation into the left shoulder and arm.

Examination: Temperature, 97.8°; pulse, 51; blood pressure, 132.84; teeth and tonsils, both doubtful. Cardiographic tracing shows marked transverse enlargement of the heart to the right and left, producing a more flattened shadow at the base than "water-bottle" or "gourd-shape," and might be designated "pedestal base heart." He was told to avoid exertion, overeating, tea, coffee, and tobacco on account of likelihood of it being a conduction disturbance. He was given ammonium bromide, gr. xxx, at night for several nights, and after a week he was free from pain and slept well.

For a year he got along well. Then it became necessary for him to act as private tutor to his basketball team in addition to being coach to help them get by their final examinations. For two or three weeks he ate irregularly, slept only two or three hours at night and trained the team during the day. At the basketball game had an attack of syncope, but was able to walk home. Next day his pulse was only 48, uneven and slight rhythm disturbance, but did not intermit. After two weeks of KI. and rest, the pulse was 60, more even, and regular, and the patient felt well.

Comment: The history, change in cardiac outline, and slow rate indicate that this patient is a genuine cardiac case. The attack of syncope with a pulse in the forties twenty-four hours later are very suggestive of heart-block, and an occurrence of this kind should not be passed over lightly. In the last five years this patient took out $15,000 in life insurance, had about five insurance examinations and passed into the army and out again with no comment on his heart condition. I passed him about a year prior to his first consultation. He himself was much surprised that he should have anything the matter with his heart, as he considered himself in perfect physical condition because of his athletic training and work as athletic instructor. The slight chest pains that he had he never thought worth mentioning, and he had forgotten the two lifting incidents. The slow rate was the only sign to raise a question, and in making an insurance examination it would be easy and apparently pardonable to increase the pulse rate two to four beats to bring it up to the required 60.

The purpose of this paper, if it has achieved one, is to emphasize the early recognition of heart disease from the patient's standpoint and to protect him by having him live at a lower level of physical activity. Much can be accomplished by starting out with a full explanation of the nature of the trouble to the patient and to impress on him that every time he exerts himself to the point where he has shortness of breath or a feeling of exhaustion he is doing himself harm. In the first three cases that were cited the patients have been working at genuine labor for one to two years, and their earning capacity has been but little decreased. The co-operation of foremen with a good measure of sympathy and understanding has been a great help to them, and they have been relieved of such duties as make a serious demand on the reserve force of the heart. Even at the very best, the man who has neglected to, or has been unable to, provide for his declining years and has lost his cardiac reserve and must depend on the product of his labors for his daily sustenance, is in a disadvantageous position. It is our duty to recognize his trouble as early as possible, and to advise him in such a way that he can to some extent mitigate his disability.

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DISCUSSION

Dr. W. H. Bodenstab (Bismarck): I wish to commend Dr. Altnow on his excellent paper, and to congratulate the Association on having had the privilege of listening to it, because I feel, and, I believe, you feel, that the subject is one of the most important to the medical man. Dr. Altnow has given us a splendid review of heart disease and its early recognition from the patient's standpoint. He has described to us the conditions which manifest themselves in these cases, and the cases which he reported, I believe, can safely be classified under the so-called cardiosclerotic group. In those cases we usually have hypertension, cardiac hypertrophy, and, undoubtedly, a degeneration of the myocardium, and they present the early signs and symptoms of cardiac failure.

May I be permitted to suggest to the Doctor the consideration of changing his subject to, "Heart Failure: Its Early Recognition," because we so frequently find diseases of the heart in individuals who are perfectly healthy and who are absolutely ignorant of having any pathological condition in their heart, because there is no loss in their normal cardiac reserve power.

Dr. Altnow has discussed the subject from the patient's standpoint, and I desire to make a few remarks from the physician's standpoint, particularly from the standpoint of the life insurance examiner, because he is the one who so frequently recognizes heart disease in individuals who are not cognizant of such trouble.

The most common abnormalities that we find, and which are considered as early signs of heart disease, are tachycardia, arrhythmia, and murmurs. When an examiner finds an abnormality he must ask himself whether it is functional or organic.

Of the tachycardias we could consider several: We have the paroxysmal tachycardia, the tachycardia due to heart disease, the tachycardia due to intoxication, and the tachycardia due to nervousness incidental to the examination.

The paroxysmal tachycardia is undoubtedly of neurotic origin, because we have never been able to determine any organic lesion in cases with this type of tachycardia.

The tachycardia of organic origin, that is, due to heart disease, of course, should be determined. When we have a man of fifty or above who has a definite rapid heart, we have to look for something besides a neurotic condition.

The tachycardia due to intoxications, the result of infections or hyperthyroidism, of course, can be easily eliminated. That leaves the tachycardia due to nervousness incidental to the examination, and those of you who make life insurance examinations find very frequently this condition present. When you have a young adult in whom there is no evidence of heart disease, no indication of thyroid intoxication, no rise in temperature, you can safely feel that the tachycardia in such an individual is an innocent one, and should be classified as functional.

If you will let your patient take a deep breath and hold it, you will find that in nearly every case of nervous tachycardia the pulse will drop to normal within a short time. This little point has helped me out many times and is well worth trying.

With reference to the arrhythmias: We have many of them: sinus arrythmia, premature contractions, systolic and diastolic, pulsus alternans, pulsus bigeminus, heart block, etc.; but I wish to call attention, briefly, to only two: sinus arrhythmia and premature contractions, because we find them so often in individuals with no other evidence of heart disease.

Sinus arrhythmia is purely a nervous phenomenon in which the heart rate is influenced by respiration, and you need not fear to recommend an applicant provided he has a sinus arrhythmia.

The same is true of premature contractions. In young individuals these are of no importance, provided the heart is normal and the blood pressure not high. You find premature contractions often in smokers, in people who are inclined to be neurotic, or after having eaten a heavy meal. Of course, we must not confound them with the so-called extrasystoles we find in people who have beginning myocardial changes.

Now about murmurs. One could talk all day and write volumes on murmurs, but I shall not worry you much longer. I wish to state, however, that one frequently hears a systolic murmur on applying the stethoscope to the chest, and, if this murmur is heard over the apex or the left side of the heart, it is pronounced mitral regurgitation. I think I can safely make the statement that, in view of the fact that functional murmurs are quite numerous, the systolic murmur heard over the base of the heart is, in a very large proportion of cases, functional. Of course, we have stenosis of the pulmonary artery, but when there is a stenosis of a valve we almost always have a thrill, besides other signs that help to diagnose the murmur. There is a systolic murmur that occurs over the apex, when the heart pounds exceptionally hard or when there is tachycardia. Under these circumstances we frequently hear an indefinite murmur or rumble, not the presystolic rumble of stenosis, but a systolic something, which disappears when the heart quiets down. We do find a great many functional murmurs, and in life insurance work I think these should be carefully segregated. It is an injustice to turn down a young man with a functional systolic murmur, because his record is sent all over the United States, and, if he is once rejected because of a mitral lesion, he will have a hard time to get insurance after that.

AN INVESTIGATION INTO THE RESULTS OBTAINED AT SUNNYREST TUBERCULOSIS SANATORIUM

From June, 1916, to June, 1922

By G. Brelsford, M. D.
Medical Director
CROOKSTON, MINNESOTA

It was decided by those in charge of Sunnyrest Sanatorium in June, 1922, to check up the results of the six years operation of the sanatorium in order to learn, as far as possible, the results of treatment, the fate of the patient after discharge, the percentage who were able to do useful productive labor, and, also, to determine the number of patients admitted in the different stages of the disease and related matters of interest. We were fortunate in being able to secure the services of Miss Esther Wick, R. N., and Miss Marie Stenseth, R. N., both of whom have had large experience in Public Health Work and who personally interviewed each patient who could be traced, and they were thus able to give an authentic report of each case. As many as possible of these patients were also examined by the Medical Director of the sanatorium at various clinics held throughout the district. It was thought that follow-up work conducted in this manner would be far more accurate and reliable than the method often followed, that of sending questionnaires to the patient to be filled out by him as he sees fit.

One of the things it was desired to learn was the per cent of the patients admitted in the various stages, as it is generally recognized that one of the chief reasons why better results are not achieved by sanatoria is that the great majority of their cases are advanced before proper treatment is instituted.

The following table shows the per cent of patients admitted in the different stages of 407 admissions.

TABLE I

Stage	Number	Per cent
I	62	15.2
II	102	25.1
III	223	54.8

Non-pulmonary tuberculosis	7
Non-tuberculosis	9
Not classified	4

This shows strikingly the small percentage of early cases received in comparison with those advanced. Other tables will show the vastly better results obtained with the early, as contrasted with advanced, cases. These facts, of course, are well known to all engaged in tuberculosis work, but they should be impressed as strongly as possible on the general practitioner and the public, to the end that greater effort be made to secure cases as early as possible when the outlook for recovery is favorable. Of 357 cases discharged, Table II shows the general classification.

TABLE II

	No.	Per cent
Arrested	12	3.4
Apparent arrest	19	5.3
Quiescent	18	5
Improved	112	31.3
Unimproved	103	28.5
Died	93	26

The following tables are of great interest and importance as showing the great difference of the final results on discharge of patients admitted in the different stages.

TABLE III

Results on discharge of patients admitted as Stage I:

	No.	Per cent
Dead	0	0
Unimproved	10	16.9
Improved	25	42.4
Quiescent	6	10.2
Apparent arrest	13	22
Arrest	5	8.5

This shows, over 83 per cent discharged improved or better. This favorable percentage would have been materially increased had not some of these patients insisted on leaving after a very brief stay.

TABLE IV

Results on discharge of patients classified as Stage II:

	No.	Per cent
Dead	9	11.1
Unimproved	24	29.6
Improved	34	42
Quiescent	8	9.8
Apparent arrest	4	4.4
Arrested	2	2.5

TABLE V

Results on discharge of patients classified as Stage III:

	No.	Per cent
Dead	81	40.3
Unimproved	62	30.8
Improved	47	23.3
Quiescent	4	1.9
Apparent arrest	2	.9
Arrested	5	2.4

The following table represents the condition on discharge of 211 patients who could be traced and who were interviewed personally, if living, or concerning whom authentic information was received, if dead. The heading "productive" was used when it could be determined that the patient could do a fair amount of useful work. Length of discharge varied from six months to five and a half years.

TABLE VI

Condition on discharge and present condition of patients admitted as Stage I:

			Present condition			
Condition on Discharge	No.	Died	Good	Fair	Bad	Productive
Unimproved	5	1	4	.	.	4
Improved	17	1	14	1	1	14
Quiescent	3	1	2	.	.	1
Apparent arrest	7	.	7	.	.	6
Arrested	2	.	2	.	.	2

Table VII

Condition on discharge and present condition of patients admitted as Stage II:

Condition on Discharge	No.	Died	Present condition Good	Fair	Bad	Productive
Unimproved	11	4	3	4	.	5
Improved	22	.	16	5	1	18
Quiescent	8	.	5	1	2	6
Apparent arrest	3	.	3	.	.	3
Arrested	2	.	2	.	.	2

Table VIII

Condition on discharge and present condition of patients admitted as Stage III cases:

Condition on Discharge	No.	Died	Present condition Good	Fair	Bad	Productive
Unimproved	36	31	3	.	2	2
Improved	32	16	10	3	2	10
Quiescent	2	.	1	1	.	1
Apparent arrest	4	.	4	.	.	3
Arrested	4	.	4	.	.	4

Of the patients who died after leaving the sanatorium and whose date of death could be ascertained the last table shows the number of deaths occurring in the consecutive years after leaving. This emphasizes another well-known fact that the first year after leaving is the one most fatal to discharged patients.

Table IX

Condition on admission

Stage I

Discharged	Year	No.
Unimproved	1st. year	1
Quiescent	3d. year	1
Improved	4th year	1

Condition on admission

Stage II

Discharged	Year	No.
Unimproved	1st. year	4

Condition on admission

Stage III

Discharged	Year	No.
Unimproved	1st. year	30
Unimproved	2d. year	1
Improved	1st. year	8
Improved	2d. year	5
Improved	3d. year	1
Improved	4th. year	2

SUMMARY

While the total number of patients reported on in this series is not large, yet the fact that the living patients were personally interviewed by trained observers and the cases of death authenticated by reliable witnesses make the results more than usually accurate.

The most striking lesson to be gained from this survey as in others of like nature is the paramount importance of getting patients in an earlier stage than that in which the majority are when admitted to the sanatorium.

We were pleased at the comparatively large percentage of discharged patients who were able to be classed under the heading "productive," that is, who were able to do at least a certain amount of useful, productive work. It was noted in this connection that, as a rule, the patients who were doing well were the ones who remained faithful to the lessons learned while at the sanatorium.

The chief reason in our opinion for the heavy mortality in the first year after discharge is the fact that many patients in a very grave condition insist in going home, and naturally, death follows soon. Another factor is, of course, the fact that the first year is one of readjustment to different conditions of living, a period, naturally, of greatest strain to the patient.

THE PASSING OF THE COUNTRY DOCTOR

By an Old-time Country Doctor

Twenty or twenty-five years ago the country doctor, by virtue of his importance, stood out prominently in every small town and rural community. He was a man of great self-reliance, accustomed to meet tragic conditions in his practice, alone and unaided. He developed a calmness and self-possession under exciting circumstances that distinguished him from ordinary men. He consulted with his brethren over difficult cases, more than is done now. He did the surgery that came within his legitimate field and often did it exceedingly well. He was often a student and, although in some cases he was slightly alcoholic, still pride of profession ran high with him, and he carried the benefits of science to the afflicted through sunshine and rain, through mud and snow, by day and by night.

If it is true that this heroic figure is passing from the stage forever, it is not without regret that we shall witness his departure, for we shall miss the glamour of romance that surrounded his personality and his calling.

If we inquire into the reason of his going, we shall be told, of course, that "times have changed." While many of the refinements of medical practice had not yet been developed thirty years ago, nevertheless there was enough scientific knowledge of medicine of a practical nature to keep any student busy for the span of a natural human life trying to acquire it. Recently much knowledge has been added, but as medical knowledge waxes, the confidence of the people in the science of medicine appears to wane. This, of course, is how it appears to an ordinary beholder, who could be quite easily mistaken.

Come with me to almost any of the small towns in the Middle West, and I will show you a picture something like this: Here are two or three local physicians and one chiropractor or osteopath. The chiropractor or osteopath is putting money in the bank, while the regular physicians do not do enough practice to keep themselves warm. The chiropractor's or osteopath's reception-room is crowded with maybe an overflow meeting out in the hall, while the regular physician is idle on the street, and watches the chiropractor or osteopath dash past making country calls. Now, these regular physicians are not inferior men; they are well-trained, well-educated, finished physicians whose education has cost each of them on an average $5,000; but between the hospital in a nearby and somewhat larger town and a group-practice clinic within easy automobile distance and the chiropractor or the osteopath they don't get much to do, except a little first-aid work and the preparation of patients for transportation to the hospital. In many places the chiropractors and osteopaths do obstetrics and surgery, and practice *at* general medicine.

Now, this picture is not as much overdrawn as it might appear, and they say it is true more or less over the whole country.

Now, how are we going to draw the line and define the legitimate field of the regular practitioner and that of the irregular? It cannot be done, at least, not in a manner that will effectively confine each to his proper sphere. Of course, we know that this condition will right itself, as other similar conditions have done, and that it is a stage in evolution and all that; but what makes us pause in amazement is why some unlettered chiropractor or osteopath can do so much quasi medical practice without anything whatever to go on except a little cheap imitation of a real doctor and get by with it in this supposed enlightened age.

The closest examination fails to reveal any real scientific principle underlying the various cults or sects. The more we examine the less we find until we arrive at the central mystery of all, which is "nothing." We certainly make a mistake when we try to force these bally hoo practitioners to go to school and acquire a knowledge of anatomy and physiology and other fundamentals. If they should have their present technic buttressed by some real knowledge they would prove very formidable, and instead of being a passing show, they might harden into permanency.

The question that puzzles us most is, why are these people able to charm the public as they do? It cannot be from any merit that may reside in their healing methods. It must be because the public are easily charmed. If we inquire further we find that there may be some truth to this; anyway, it is obvious that we are unable to impress the masses with our skill and learning as we ought to, and there must be some reason deeper than mere superficial indifference on the part of those we are trying to serve.

Let us examine some of the sociological conditions that obtain and see if we can get some light on the subject and find out, if we can, why the proud science of medicine should be so discredited.

We find today a universal smattering of knowledge among the people, which only serves to increase their contempt for learning and greatly increases their credulity. It also causes the superficial thinker to believe that popular intelligence is advancing by leaps and bounds while, as a matter of fact, all indications point to the fact that the intellectual level of the masses is falling, if anything. We must distinguish between intellect and education. Intellect comes from heredity, while education comes from environment; and while it is true that educational facilities have increased greatly within recent years, the intellectual level, which is dependent on the racial qualities of the people, has shown no such improvement. So why should we marvel if the false prophets of medicine, like false prophets in every other walk of life, have a tremendous following?

The false prophet has one enemy from which he cannot escape, and that is "Time"—time shows him up; and this is why the laws passed by the medical profession to repress the paranoiac activities of alien cults are more liable to retard their exit from the stage than to hasten it because we give them the chance to howl "persecution."

Madison Grant, in his classical book, "The Passing of the Great Race," informs us that the cephalic index is falling, due to the absorption of inferior subspecies of the white race and the breeding out of the superior types. Perhaps some fundamental conception of this nature may throw some light on our subject, because we know that the learned professions are always the first to suffer at the hands of the lower castes; the upper classes have instinctive confidence in the professions and are imitated by the lower types. We persistently overestimate the intelligence of the masses and forget that they are just as superstitious today as they ever were, and we fail to see that the stream cannot rise higher than its source.

We launch campaigns to educate the dear public into better ways of thinking, but the dear public keeps on thinking just as it always did, and our carefully aimed volleys of truth pass harmlessly over its head.

While these conditions exist the bogus prophets of the healing art can be sure of a respectful hearing from a credulous public, and we can depend on the bogus prophet aforesaid to take advantage of the situation in a shrewd and business-like manner. The phrase, "a discriminating public," is a phrase dear to the heart of the loose thinker, for between the true and the false, the public is more apt to discriminate in favor of the false than otherwise.

But let us not bother about the chiropractor or the osteopath or any of the rest of them. Time will pass, and they will pass with it; but the American doctor will still be found at his post, doing his work and doing it well.

CASE REPORTS PRESENTED BEFORE THE MINNESOTA ACADEMY OF MEDICINE

Meeting of November 8, 1922

Dr. E. M. Hammes reported a case of cerebrospinal syphilis, as follows:

This young woman, 26 years old, was first seen by Dr. Carroll, February 26, 1922, complaining of a sore throat. A blood Wassermann at this time was positive. Because of the danger of publicity, she decided to go to Minneapolis to take treatments for this condition. She was given intravenous treatments of neosalvarsan for seven doses at five day intervals. On March 20, 1922, she was operated on by Dr. Carroll for pyosalpingitis, and after she had recovered from this her intravenous treatments were again resumed. She was given six more treatments. Her treatments were discontinued July 13. July 20, she developed a severe, constant, headache, more marked over the frontal region, which continued for about three weeks. On August 11, she became nauseated, and on the next morning she became aphasic, and a few hours afterwards semiconscious. Dr. Carroll asked me to see her at this time. Her neurological examination was negative throughout; her blood Wassermann was positive; her spinal fluid was under pressure; had a positive globulin, 65 lymphocytes per cu. mm., a four plus Wassermann in 1 c.c., and a positive colloidal gold curve —12344321. She was placed on 0.6 gram neosalvarsan intravenously with spinal drainage once a week, combined with mercury intramuscularly and increased doses of the iodides. This was continued until October 1. Her aphasia gradually cleared up; her headaches disappeared after the first week. An examination of the spinal fluid on October 3 showed the following: normal pressure, a trace of globulin, 21 lymphocytes per cu. mm., a negative Wassermann in 1 c.c., but a positive colloidal gold curve,—12334321. Because of the presence of the lymphocytosis in the spinal fluid and the positive colloidal gold curve, we have advised further treatment in this case.

Stokes has called attention to the great danger of relapse in those cases where treatment has been discontinued before the lymphocyte count in the spinal fluid has returned to normal. I am reporting this case again to call attention to the great importance of an examination of the spinal fluid in every case of syphilis. Furthermore, I want to emphasize that in cases with definite spinal fluid findings, the intravenous treatment of salvarsan with spinal drainage or the combined intravenous and intraspinous medication gives better clinical and serobiological results than the intravenous treatment alone.

Dr. R. E. Farr reported a case of fracture of right tibia and fibula, as follows:

Master A. W., aged 14.

Operation: open reduction; screw fixation; local anesthesia.

History: Patient entered St. Mary's Hospital, September 26, 1922. On September 22, 1922, the patient was kicked in the right leg by a playmate. X-rays showed fracture of both bones. Patient entered another hospital, and reduction was attempted. The reduction was incomplete. An open operation was advised, and the patient then came under our care.

Anesthesia: Local infiltration block at the junction of the upper and middle thirds of the leg, approximately 10 cm. above the point of the fracture of the tibia; 120 c.c. of 1 per cent procain solution was used.

Operation: After unsuccessful attempts to reduce the fracture under the fluoroscope, the open operation was carried out. A curved incision 15 cm. long was made on the outer aspect of the leg. The tibia was forced into alignment and held by bone forceps, while a drill was introduced to puncture wounds made in the skin of the flap. Through these incisions long screws were inserted firmly approximating the fragments. The incision was then closed and a plaster-of-Paris cast applied over copious dressings, a window being left for the projection of the screw heads. Primary healing resulted. All dressings and the stitches were removed on the eighth day. A close-fitting plaster cast was then applied to the limb, and after its application the screws were removed through a window, which had been allowed to remain in the cast. The patient was then allowed to return home, and now, one month after the operation, union seems to be complete. We have employed this method in a number of cases with most excellent results. Eight days is the earliest time at which we have removed any of the screws, but it would seem that the earlier they are removed the better.

Dr. Herbert Jones reported two cases, as follows:

I have two cases that have bothered me a good deal. One of them was a woman about thirty years old (this was seven or eight years ago). I was called to see her in consultation, and the prominent symptom was a respiration of four to the minute with absolute cyanosis. That condition had kept up for an hour then and gradually lessened for two to three hours afterwards. There was a very marked interference with the centers of respiration. She had had two or three previous attacks, milder in character and shorter in duration. We waited until she recovered from that and endeavored to get a history. She fooled us right along on the history, and we coud not get much from her. She was married at this time, but had no children by this marriage. She was very deceptive and did not give us much information. Nystagmus was present and the Wassermann was negative.

I did a subtemporal decompression and two weeks later did a cerebral decompression. She showed a great deal of pressure, and her condition was so precarious that we simply did a decompression. There was a clearing up of her symptoms, and she passed out of my observation. She did her housework and got along fairly well until this spring when she had a milder form of these attacks. One was in a shop, and friends took her to a local doctor who sent her down to me.

At this time the decompression had worked well enough so that there was little pressure. The symptoms now were abdominal. She had a tumor with large inflammatory deposits. I did a hysterectomy, and she got along very nicely for some three weeks and then developed a phlebitis of the left leg. Then she developed a pain in the chest and had asthma and bronchitis with a good deal of coughing. The train of symptoms seemed to involve her whole system, but still we could get no history. I was just about to give her mercury when her stepmother came down, and she gave us a history. It seems that her father and mother had separated when this girl was fourteen years old (which is a very bad thing for the children), and both had married again. They had taken this girl to a small town in the northern part of the state. There her new stepfather had a place and his brother had another near it and his wife was the school-teacher, and they got this girl to do the janitor work. The first thing they knew she was pregnant, and the stepfather's brother was the father of the child. They brought her down here and put her in Bethany Home immediately, where a diagnosis of syphilis was made. Afterwards they sent for her stepmother, who lived in Dakota and she took the girl home with her. She was put under the care of a physician out there, with no evidence of lues whatever. She went up north again and became pregnant again. but miscarried at five months. It was not very long before she was pregnant again, and that child lived several months and then died. Evidently the long time existing between the infection at fourteen and the test is the reason we never have gotten a positive Wassermann on her.

Case 2. The other case came to me last summer with a large fibroid tumor. She was a small woman, thin, and a nice case to operate on. The tumor had been allowed to go just as long as she could stand it. It had pressed against everything in the pelvis, and there was very little room for anything else there. I opened the abdomen and tried to pull the tumor up, and it was absolutely the hardest thing I ever tackled. The uterus was not visible except a little part of it up near the promontory, where we could find one tube. The rest was lying back of the fibroid and was elongated to about eleven inches in length. I went down as far as I could on one side and pulled the thing up and then went down on the other. She then got to bleeding so much that I had to hurry a little, and, when I finally got the tumor out and found what I had, I discovered I had completely ligated both ureters and torn the bladder. The pointed end of the tumor had stuck right into the bladder, drawing the ureters right in between this and the cervix, so that the ureters were right against the tumor and the uterus. Fortunately, we discovered all the trouble in time, so I took the ligatures off of the ureters and sewed up the bladder, and the woman made an uninterrupted recovery as good as any hysterectomy you would want to see.

Dr. Gustav Schwyzer reported the following case:

The patient whose pictures I am showing you today is a thirty-three year old woman who had a confinement on November 2, 1922. The child is a healthy boy. She has had, all in all, nine confinements. The second last confinement took place August 19, 1921. Very soon after that she noticed a swelling in each groin below Poupart's ligament. The swelling in the right groin disappeared within a few days, while the other swelling on the left side remained and later on increased in size, though very gradually. The consulting physician made a diagnosis of an inflamed vein and encouraged the patient to leave it alone.

This swelling on the left side is today representing the tumor that I wish to speak about. As you see on the picture, it consists of a slightly irregular growth of hard consistency and about the size of a child's head. The skin is broken open at its top and a necrotic area is visible within this broken skin. It lies directly over the fascia lata. By palpation we find that it does not reach Poupart's ligament and is movable in toto slightly in the vertical sense, but more so in the horizontal direction. We took a section out of this growth for the pathologist, who gives us the surprising news that we have before us hypernephromatous tissue. The large epithelial cells are well demarcated, and the nuclei contain numerous mitotic figures. Clinically we are unable to find by palpation any enlarged kidney, nor do we find in the history any bloody urine. The uterus is small, cervix still open and still discharging, no perimetritis, no parametritis, no infiltration on the side where we find the tumor. The thyroid gland is absolutely normal.

Yesterday, November 8, 1922, we inserted 125 milligrams of radium in all directions of the tumor through the little opening we created in the anterior portion of the tumor, being aware of the danger of making multiple skin lesions.

Furthermore, three days before the patient came to us the tumor was incised, but only blood discharged. An erysipelatous infection set in, spreading all over the thigh clear down to the knee and sideways toward the ischium pubis.

Tonight after inserting the radium the temperature did not go up as high as before. The tumor looked more quiet this morning. Should we become convinced that the reaction of the radium is favorable and that the diagnosis of sarcoma of the fascia lata becomes more than probable, we shall make an attempt to excise the growth.

DISCUSSION

Dr. Mann: That reminds me of two cases which I had a few years ago, several years apart. One of them, an unmarried woman of 43 or 44 years of age, had a tumor about the size of a hen's egg in the left groin. It was rounded, smooth, and the skin slid over it. It was fastened, however, to the fascia. I removed that and had to take some of Poupart's ligament. The pathologist's report was round-celled sarcoma. Dr. Bell examined the specimen. That woman is still well, and that must have been about seven years ago.

The other one was a woman in her thirties, who had a tumor in the same place and about the same size—perhaps a little smaller. This one was fastened to the round ligament. That was a benign adenoma with tissue in it suggesting the tissue of the uterus. My explanation of that was that a piece of that ligament had drawn down some of the uterine tissue in the embryo.

Dr. A. T. Mann reported three cases with a history suggesting ulcer of the duodenum.

I am very much interested in these cases and we have had a goodly number of them.

In one of the cases, after careful study the history was quite characteristic with the seasonal incidence of spring and fall; the pain coming on about two hours after meals, and the pain was made worse by the fatty foods and things of that sort. The x-ray findings showed at first an indefinite outline for the duodenal cap, but was not conclusive. A re-ray, with belladonna to get rid of the muscle tonus, still showed that same condition, and a diagnosis was made of ulcer of the duodenum.

In the second case the history was not at all conclusive. The incidence of his trouble was not the seasonal one, at least it did not follow that closely, and while he had trouble with his food he did not have trouble with all the foods that cause trouble in cases of ulcer of the duodenum. There was a little tenderness to the right of the median line. The history suggested a possible gall-bladder disease without the characteristic pains. The x-ray findings showed a little obscurity on the upper anterior margin of the duodenal cap. A re-ray under belladonna showed that still present, so a diagnosis something like 60 per cent for ulcer and 30 per cent for gall-bladder with possible adhesions, and the rest of it for a chronic appendicitis, was made.

The third case seemed in its history to be more like a gall-bladder, but there was a persistent defect in the duodenal cap and it persisted after a second x-ray under the administration of belladonna.

The first case at operation showed a small area which was a little whiter than the normal color of the duodenum. Under the finger there was just a little more thickness than normal. I felt that the diagnosis was correct and excised a portion of the duodenum which included this scar and sutured it with a double row of chromic gut so that the suture line was about one inch long when done. There was a small ulcer less than one-eighth of an inch in diameter on the inside of the area of the scar.

The second case proved to be a chronic cholecystitis. In this case the gall-bladder was removed.

It is very difficult before operation to make a really accurate diagnosis between a gall-bladder with adhesions and an ulcer of the duodenum unless the history is perfectly clear. In the first case the HCl content was quite characteristic of ulcer. With the gall-bladder case the hydrochloric acid content ran up and then went down before the next meal, and that we have picked out as one of the fairly characteristic curves of a stomach with reflex stomach symptoms in which there is a gall-bladder or an appendix or other cause outside of the stomach itself. When the cause is a true ulcer of the stomach or of the duodenum, the fractional test-meal taken at 15-minute intervals shows that the hydrochloric acid curve is apt to continue high up to the next meal and then to drop.

The third case was operated on, and we found a definite ulcer scar which I excised. The excision of the ulcer we have done by preference for the past year. That gives a smoother and quicker convalescence, and the convalescence is better than our old cases used to be. We have swung quite decidedly to an excision of the ulcer if that can be done.

DISCUSSION

Dr. Abbott: Did you make a gastro-enterostomy in these cases?

Dr. Mann: No, we just made a simple excision of the ulcer.

Dr. Corbett: I should like to ask about these adhesions between the gall-bladder and the duodenum.

In some cases where adhesions existed, the gall-bladder has been removed and on examination proved to be normal. In addition, pathology in the duodenum can sometimes be demonstrated only by opening the duodenum. So I believe such adhesions indicate pathology in the duodenum, as well as in the gall-bladder.

Dr. Mann: That is all perfectly true. However, when there are adhesions often the ulcer is quiescent and healed, and the symptoms may continue. There is one last case which I had, but have not mentioned, which was definitely a gall-stone case. I operated for gall-stones and the gall-bladder looked perfectly normal and blue in color, but I finally removed sixty stones. So to the naked eye a diseased gall-bladder sometimes looks quite normal. It requires a microscopic examination of sections of the walls of such a gall-bladder to disclose the pathological changes which are present.

Dr. A. E. Benjamin reported a case of infected knee joint and staphylococcus aureus infection of the blood.

Mr. R. N., aged 13, student.

Family history, negative.

Personal history: "Flu" in 1918, light attack, otherwise quite well.

Present illness: October 1 fell while running and bruised both knees. Two weeks later left knee began to show signs of superficial infection in small area. October 15 fell again, striking left knee. Saturday, October 21, joint began to pain severely and swell. Hot applications and ice bags applied alternately. Superficial infected area opened on October 24 by attending physician. Hot applications applied. No relief; nausea, vomiting, anorexia. Brought to hospital Wednesday night, October 25; temperature 101°-103°; pulse, 110-125; leucocyte count, 24,000.

Physical examination: October 26. Head: some stiffness of neck and back muscles. Chest, negative. Abdomen, distended; some pain on deep pressure over gall-bladder area. Spleen, enlarged about one-half times the normal. Extremities: left thigh somewhat enlarged, knee considerably swollen and tender over joint with some fluctuation, more pronounced to outer side. Floating patella. Superficial area of infection from injury one-quarter of an inch in diameter. Aching of back and muscles.

Treatment: Serum (antitetanic) given, 1,500 units two days in succession on account of possible tetanus infection.

Operation October 26th, 1:00 A. M.: Gas anesthesia. Knee-joint aspirated. Joint fluid found to be infected. Joint incised at inner side of patella. Phlange drainage tube ¼ inch in diameter inserted. Joint washed out. On account of leucocyte count increase and patient showing further signs of infection the joint was drained more thoroughly on November 1 at 10 A. M., under gas anesthesia. Inside of knee-joint opened beneath patella. Rubber strip passed through to opposite side. Joint irrigated daily thereafter. Posterior part of joint not involved. Joint moved occasionally.

Laboratory findings: Leucocyte count,—

October 29—27,500
October 30—48,500
October 31—72,750
November 1—95,375
November 4—78,000
November 6—63,000
November 8—50,800

Urinalysis:

November 3, pus cells +++

November 5, cloudy, acid, 1,025, albumin very faint trace, few pus cells.

November 6, albumin very faint trace, few pus cells.

Differential count:

October 29: small lymphocytes, 8; large mononuclears, 1; transitionals, 2; P. N., 89.

October 31: small lymphocytes, 14; P. N., 86.

Blood culture: November 3, staph. aureus.
November 5, positive staph. aureus.

X-ray of knee October 31, showed no destruction of articular cartilage. X-ray of chest, liver, and kidney on November 6: liver enlarged, possibly right kidney and possibly some diaphragmatic pleuritic thickening.

Comments: Patient's back and neck symptoms gradually disappeared; abdomen more flat; bowels more regular; appetite somewhat improved. Pain in region of liver and right kidney, and two superficial sore and red areas appeared. Some enlargement of liver and right kidney. Breathing rapid during whole course, being about 30 per minute. Temperature ranged between 101°-102°; pulse, 110-130; kidney function, much lessened for a time, so fluids were decreased and output became increased proportionately until present time, being 800-1,200 c.c. daily. The patient has had no chills, very little delirium, sleep irregular, and somewhat disturbed, no headache, no nausea or vomiting since October 24. Left parotid gland began to swell on November 6; to-day is three times normal size and painful. November 3 some pleuritic friction rub on right side, less on left, anterior, and central; heart, apparently normal.

Results: Patient's temperature running between 101°-102°. Pulse, 120-130, fairly strong and regular. Respiration, 30-35. Patient somewhat emaciated, appetite poor, tongue clear, all faculties normal, but has disturbed sleep. No headache or pain excepting on pressure over sore areas, namely enlarged parotid gland, area over liver, and one area above inner side of left knee. Left joint freely movable and swelling in thigh much reduced. X-ray shows liver and kidney enlarged and prolapsed or pushed down some. Dr. Corbett saw the case in consultation.

Leucocyte count November 8, 50,800.

DISCUSSION

Dr. Corbett: I would like to say just a few words in regard to this case. It is a very puzzling one inasmuch as the staphylococci were so easily found in the blood cultures. Clinically, it looked like a multiple pyemia, however, the child had no chills. The kidneys felt distinctly tender, there was some involvement of the parotid, and in spite of the improvement of the knee the patient's general condition became worse, instead of better. The surprising thing is the high leucocyte count. There seems to be very high resistance on the part of the leucocytes.

It brings up in general the treatment of infections of the knee. I remember listening to a paper by Dr. Maxeiner telling of wide incision of the knee-joint and allowing the patient to use the knee-joint. I have tried this method with very considerable success. In one case I found increase of symptoms, so I immobilized the knee, and almost at once the joint improved.

Now the initial injury in this case is a peculiar one and it is remotely possible that the knee was only a part of a general infection at the time of the injury. I don't think we are justified in saying that this appearance of the staphylococcus was the moving of the knee. I think we are yet in the infancy of treatment of infections of the knee-joint.

Dr. Dunsmoor: Speaking about immobilizing that knee and putting in a drain: Dr. Murphy said "Those joints which are fixed and continuously drained become stiff."

Dr. Cole: I think this subject of drainage of the knee is very important because we do see stiff knees. There are three general courses to follow as a rule. The first type, infection of the knee where you aspirate and find pus: If you open it up wide and sew it up tightly, in a big percentage of them you will get a movable knee. You may have to aspirate a few times. There is another type, where all you have to do is to open up the infection and start the Wilm's treatment, which is the active movement of the knee. It stimulates the knee-joint so that you do not get the atrophy. Then if you see the knee going on to destruction, open it wide, put in Dakken solution, and get a stiff knee.

Dr. Farr: I rise to add my approval of the use of the Wilm's method. We have had only a few cases, but where the patient co-operated the success has been uniformly good. In addition to the knee case mentioned by Dr. Corbett, which occurred in my practice and in which Dr. Maxeiner took care of a streptococcic infection, we have had a woman nearly fifty years of age with a septic arthritis of the hip that had been neglected for several weeks, when a quart of pus was evacuated from the joint and a finger exploration showed a denuded bone. In this case we established through-and-through drainage, placed a heavy bandage beneath the patient's foot so that she could aid herself in drawing the limb upwards, and she came through with a perfectly movable joint.

Dr. Emmet Rixford (of San Francisco, Calif.): I am very pleased to meet the members of this Society. In regard to this kind of a case, Dr. Cole sized it up very well. The only thing I could add, and it is of considerable importance, is to get rid of any blood clots and any coagula that may be in the joint in applying the Wilm's treatment. It is a very striking thing to see the joints become movable.

Dr. Benjamin: We are not concerned about that knee so much, but we want to save his life. I would like suggestions so far as treatment is concerned. Is there anything more that can or should be done in the way of general treatment? He is a very sick boy, and it does not look as though he would pull through unless the leucocyte count is a true index of his condition.

Dr. Zimmerman: In the *x*-ray there, is there any indication of a subdiaphragmatic abscess on the right side?

Dr. Benjamin: We had thought of that, though there are not other indications enough yet.

Dr. W. A. Dennis read a paper on "The Use of Radium in the Treatment of Benign Prostatic Enlargement," which was discussed.

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SHIFTLESS DIAGNOSIS

Our attention has been called to the record of a case which illustrates the carelessness of some physicians, at least, and also the dangerous habit of treating a disorder when no one knows what is the diagnosis until it has been verified. We can best illustrate our point by citing this case.

In November, 1920, a reservoir tank, of the old-fashioned type that is suspended in a bathroom, fell and struck a woman in the back of the neck. At the time the woman did not consider herself seriously hurt. Her head felt peculiar on the left side, posteriorly, for some months, especially while she was combing her hair. She had pain and a tired feeling in the region of her head and neck, which would come on as a "dead, steady" pain. Her neck was somewhat stiff. She had some pain in the small of her back, but no numbness or weakness anywhere until February, 1921, when she had a prickling sensation around the nails of her hand with gradual loss of sensation. The fingers also grew weak, and for the first time she applied to a physician, three physicians in fact. The first one told her she had high blood pressure. This was his sole diagnosis, and he evidently did not examine her at all. The next physician decided that she had a small growth on her womb, and he tried to explain her gradually increasing weakness on this diagnostic point. She saw the third physician, who without much hesitancy and evidently without much foresight thought she had a slight hemorrhage of the brain. She grew worse steadily, until her right foot became partly paralyzed. This condition continued, with gradually increasing symptoms, until January, 1922. She had numbness of the hands; she could feed herself only with difficulty; she could walk with aid but her feet dragged, and yet there was no rigidity or stiffness of her limbs. At this time she consulted a chiropractor, complaining of pain in the back of the head. She was given four chiropractic adjustments every week until she had completed 184 sittings,—that is, her spine was snapped into position from her sacral region up to her upper cervical region. This was done with considerable force in order to produce the necessary snappy return of her dislocated vertebræ! She continued gradually to get worse, had a great deal of muscular rigidity, and paralysis of the bladder and also of the bowel; and for four or five months she had been using her accessory muscles of respiration.

At the time she fell into the hands of a man who really examined her, she could rotate her head slightly to the right and left and also had some flexor movements of the head and neck, in spite of her fractured vertebræ. It was discovered at this time, November 17, 1922, that there was extreme hypertonicity of all muscles of the neck and body, with a great deal of pain. She had ulcers on the knee. When she was finally seen by a neurological surgeon she was practically helpless, gasping for breath and totally paralyzed. She had a quadroplegia. Her cervical spine was operated on under local anesthesia, and it was revealed by the operation that there was a marked crushing of the spinous process of the third cervical vertebra and more or less crushing of the second and fourth. Loose fragments of bone were removed by means of the rongeur forceps. On attempt to elevate the lamina which was evidently crowding the spinal cord, the woman began to breathe better, and her abdominal respirations also became better at this time. The cord seemed to come at once to the surface and into the field. The laminectomy was completed by the removal of the second, third, and fourth spinous processes, as well as the laminæ. The operation was performed on the first of November, 1922, and the patient is still living, her body, head, and neck being so fixed that no further pressure can take place on the cord. How long she will live no one knows.

This is an illustration of shiftless, incomplete, or cursory examination without effort at a diagnosis. Do you blame people for being discouraged with a physician, or physicians, under the circumstances, or do you blame them for going to a chiropractor who, in full confidence of his curative powers, fails to appreciate in any degree the diagnosis of his patient, but persistently sails into the vertebral column, attempting to push it back into place, in order to validate his theoretical assumption that the vertebræ can be easily dislocated and put back into normal position by this snapping and deep movement of the spinal vertebræ? All the time, during the entire 184 so-called adjustments, the woman grew steadily worse, until within a few days ago when she was recognized as a case of fracture of the spinal vertebræ. The *x*-ray showed very clearly the fracture and its location, and the operator very cleverly removed the fragments of bone. Yet this woman had gone on from November, 1920, until December first, 1922, unrecognized, undiagnosed, and badly treated until she was seen by a man who gave her time, consideration, attention, and good advice.

Two other cases are worth mentioning in this connection, both happening in the practice of an eminent surgeon in a South Central city.

A woman for some minor complaints, largely subjective, went to a chiropractor for an adjustment. In the first treatment his strength of purpose and strength of limb broke her back. She immediately became paralyzed from the lesion down,—a complete paraplegia due to transverse trauma of the cord. This case is still under observation in a hospital and will be carefully observed. It will doubtless come to autopsy within a very short time.

The other case, reported by the same surgeon, is that of a woman who had tuberculosis of the spine, commonly known as Pott's disease, in which the chiropractor endeavored to reduce the offending protrusion, and the patient died under his first manipulation.

These three cases illustrate the necessity of some thoughtful discrimination in regard to the attack upon patients who suffer from fractures and inflammations of the spine, and also of the brutal method of treatment. Such illustrations should be considered by the legislature and by the better class of men who are practicing spinal adjustments, in order to keep out the unfit, the unworthy, and the ignorant.

A PROFUSION OF MEDICAL MEETINGS

Beginning December first and apparently ending December ninth, there have been five medical meetings not far from the Twin Cities. The first one, the Nu Sigma Nu Medical Conference, was held on December first and second; following this was the meeting of the Southern Minnesota Medical Association on December fourth and fifth; and in Rochester, on December fourth and fifth, there was a continuation of the Nu Sigma Nu meeting. Beginning the fifth and extending into the sixth was the meeting of the Catholic Hospital Association, at Rochester; and on the fifth and sixth the Second Annual Clinic was held at Mitchell, South Dakota. On December eighth and ninth the Western Surgical Association held its annual meeting in Minneapolis. Incidentally, it might be mentioned that the regular Hennepin County Medical Society meeting, scheduled for December fourth, was unfortunately postponed one week so that members could attend the Mankato meeting, which was not as well attended as usual, largely on account of the number of medical meetings elsewhere. Then, too, the Hennepin County Medical Society had its regular noon meeting on Wednesday, December sixth, thus covering every day except Sunday, December third, with meetings of medical interest in the time mentioned.

This is crowding things a bit too much, and some men apparently became confused as to which meeting they would like to attend. Aside from all that, however, this should never be permitted to occur again. It simply upsets the regular program, and it induces many men to stay away from the meetings they should attend; and, altogether, from the point of attendance, all of these meetings have suffered from a superfluity of medical societies. It may be that the lack of attendance at the Southern Minnesota was due to a combination of events. Perhaps it would be better for them to go back to their summer meeting, which is usually well attended, and make that the annual meeting rather than the first week in December when everything is at high pressure mark.

The postponed meeting of the Hennepin County Medical Society was well attended. The five-minute papers were read in rapid succession, and the discussions were limited because each man felt he ought to go to the general meeting of the auditorium committee, which packed the auditorium to its limits.

CORRESPONDENCE

CONDITIONS IN EUROPE AS I SAW THEM

To the Editor:

To get a fair conception of conditions that exist in Middle Europe it is necessary that one spend some time there and meet all classes and go into the homes to see the poverty and suffering that really exists.

First of all, a little comparison of the buying value of the Austrian kronen of today and its pre-war value will give one a better idea of conditions than anything else. Before the war $1.00 bought 5 kronen; today $1.00 buys 75,000 kronen. Eight months ago street car fares in Vienna were 100 kronen or $20.00 pre-war value; now they are 3000 kronen (four cents present value) or $6.00 pre-war value. One loaf of bread now costs 12,000 kronen (18 cents) or $2,400 pre-war value.

A man with 100,000 kronen before the war was considered wealthy, but he would today spend his entire fortune for one ordinary meal. The ordinary man of means before the war would today spend his life's savings for a light lunch.

Picture, if you can, the thousands of men with families unable to obtain work whose only income is 20,000 kronen each week from the Government,—a sum not sufficient to buy two loaves of bread or five pounds of coal. Prices of food and clothing are now about as high as in the United States, sometimes even higher.

The cost of living in Vienna at present is about the same as here in the States. Austria has lost practically all her resources. They have no coal or minerals and only small amounts of good agricultural land, and most of their factories were taken away after the war.

With the low rate of exchange the Austrians are unable to buy raw material to keep running what few factories they have. With the continual drop in their exchange the people have no incentive to work and spend what they do earn as fast as they get it before it depreciates. They expect their money to become worthless, so they do not try to save.

Under these conditions suffering, especially during the winter, will be extreme.

The American Medical Association of Vienna is again well organized and doing good work. The work in the clinics is good, though material is not so plentiful as before. Since the raise in street car fares many patients are not able to go to the clinics for treatment. Operative cadaver work is good, with plenty of material to be had.

In Berlin, Frankfort, Prague, Budapest, and other cities the work is not as well organized and not many American doctors study outside of Vienna.

—C. E. Hamel, M.D.

Minneapolis, Dec. 1, 1922.

HUMAN ACTINOMYCOSIS

To the Editor:

I am endeavoring to make a complete study of the distribution of human actinomycosis in this country. The number of cases reported in the literature is surprisingly small, and I know that the disease is not so rare as is sometimes thought. I shall greatly appreciate hearing directly from any one who has had experience with this disease, and desire to know concerning case histories the following: age, sex, occupation, residence, state in which the disease was contracted, location of lesion, duration of symptoms, and any special points of interest connected with the treatment, outcome of the disease, or necropsy findings.

—A. H. Sanford, M.D., Mayo Clinic

December 6, 1922. Rochester, Minn.

BOOK NOTICES

The Medical Clinics of North America (issued serially, one every other month), Vol. V, No. 5, March 1922. By Boston Internists. Octavo of 335 pages, with 62 illustrations. Per clinic year (July 1921 to May 1922), Paper, $12.00 net; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

1. Henry A. Christian finds beneficial results as frequently in regular decompensated hearts as in those with auricular fibrillation, following the use of digitalis.
2. William H. Robey emphasizes the fact that true angina pectoris may exist without any signs of cardiac disease, but, occurring in an elderly person, it is of grave import, even though the heart examination is negative.
3. Cases reported by Elliot P. Joslin illustrate the danger of sudden change of diet in diabetics. A case of diabetes in a child with records over a period of five years is reported.
4. A case of severe chronic indigestion with fermentation of starches in a child of two is discussed by John Lovett Morse.

5. George R. Minot discusses the changes in the body fluids following severe hemorrhages and the indications for transfusion.

6. Several cases of myxedema are reported in detail, and a tabulation of fifteen cases is made from the standpoint of symptoms, findings, and treatment by Cyrus T. Sturgis.

7. Bronson Crothers gives anatomical and theoretical reasons why breech extraction causes head injuries in the fetus.

8. A case of acute rheumatic endocarditis is discussed by Joseph H. Pratt.

9. William D. Reid reports several cases of cardiovascular syphilis and discusses the diagnosis and treatment. He quotes figures showing that 75-85 per cent of autopsies on bodies known to have been infected with syphilis show lesions of the cardiovascular system.

10. A survey of the present status of the diagnosis and treatment of syphilis is made by Channing Frothingham. He advises examination of the spinal fluid before beginning treatment in a case of old infection, and before discharging a patient in all cases.

11. James P. O'Hara advises caution in interpreting hypertension and also advises against attributing changes in pressure to any drug or method of treatment. He shows charts from which false conclusions could be drawn about the effects of treatment.

12. Several cases of peptic ulcer are reported by Charles W. McClure, with a review of methods of examination and of treatment.

13. Edwin T. Wyman discusses diarrhea in infants, comparing the fermentative type with the infectious and presenting illustrative cases.

14. Two cases of acute respiratory infection in children, one due to a concealed lobar pneumonia and the other due to an infection of the tracheobronchial glands, are discussed by Lewis Webb Hill.

15. Stanley Cobb presents a case of epilepsy with complicated contributory factors. He considers that Southard's idea of epileptogenic foci is the best theory to explain the mediumisms of the convulsions.

16. Studies of duodenal contents in a case of paroxysmal hemoglobinuria were made by Chester M. Jones, who reports interesting changes in the bile pigments.

17. Howard F. Root reports some unusual neurological findings occurring in diabetes.

18. Four cases of purpura in children are reported, with details of blood findings and fragility tests, by Thomas E. Buckman.

19. W. Richard Ohler presents a series of diabetic cases studied with sugar-tolerance tests as shown in both urine and blood.

20. Several cases with unusual disorders of the heart-beat, studied over considerable periods of time with clinical observations and electrocardiographic tracings, are described by Louis E. Viko and Paul D. White.

—O. S. Hansen, M.D.

An Introduction to the History of Medicine, With Medical Chronology, Suggestions for Study and Bibliographic Data. By Fielding H. Garrison, A.B., M.D., Lieutenant-Colonel, Medical Corps, U. S. Army, Surgeon General's Office, Washington, D. C., Third Edition, Revised and enlarged; 942 pp. Philadelphia: W. B. Saunders & Co., 1922.

The third edition of this well-known history has been brought down to date and includes numerous names brought into prominence in the late war

The volume is profusely illustrated, and the illustrations are exceptionally good.

The contents are subdivided into twelve headings beginning with the earliest records, followed by accounts of Egyptian, Oriental, and Greek medicine; and then the various periods are taken up, bringing it down to the twentieth century. Short accounts of the lives and chief contributions of the various outstanding figures of each period are so incorporated in the text as to render it easy and interesting reading.

—R. C. Webb, M.D.

Surgical Clinics of North America. (Issued serially, one number every other month.) Vol. 2, No. 5 (The Philadelphia Number), 331 pages, illustrated. Philadelphia and London: W. B. Saunders & Co.

This second Philadelphia number of the Surgical Clinics contains contributions by some of the best-known surgeons of that city. The first of Dr. Deaver's five cases is one of duodenal ulcer, which he treats by pylorectomy and gastro-enterostomy. The findings and operative procedure are described and discussed in great detail. A discussion by the pathologist, Dr. Reiman, is appended. Dr. Ashhurst's series of nine cases of cancer and stricture of the colon and rectum make a very interesting study indeed. Drs. Frazier and DaCosta discuss certain phases of brain tumors; the clinical lecture of Dr. Frazier on the relation of brain tumors to the cerebrospinal fluid and to the ventricles is especially instructive.

—Theodore H. Sweetser, M.D.

Surgical Clinics of North America. (Issued serially, one every other month.) Vol. 1, No. 5 (The San Francisco Number), 259 pages, illustrated. Philadelphia and London: W. B. Saunders & Co.

The appearance of the first San Francisco number of the Surgical Clinics of North America is a good omen. It seems to indicate that the announced aim of the publishers will be realized, and that we shall be brought into more intimate contact with the surgical thought and practice of all rather than of a few of the large clinical centers of the continent. The future numbers will be awaited with pleasant anticipation.

This San Francisco number is a particularly interesting and valuable one. There are a number of unusual cases included. The greatest food for thought, however, comes from the discussions of the types of cases which we see frequently. The clinics are very well thought out and arranged.

—Theodore H. Sweetser, M.D.

Medical Clinics of North America. Bi-monthly, May issue, Vol. 5, No. 6, with index to Vol. 5, 1921-1922, Chicago Number, 214 pages; illustrated. Philadelphia: W. B. Saunders & Company.

This number contains twenty-two different articles on wide range of subjects. Dr. A. R. Elliott discusses abdominal reflex disorders, particularly as influenced by disturbing emotional states. Five cases of pernicious anemia representing various types and stages of the disease are reported by Dr. C. S. Williamson. Dr. M. R. Porter reports three very unusual cases The first case reported developed a renal abscess, which was opened and drained with an uneventful recovery. The second case was one of seasonal diarrhea of fifteen years' duration, showing a marked agglutination for bacillus dysenteriæ (Flexner). This case illustrates the value of intensive treatment of chronic diarrhea. The last report is of a case of ulcer of the second portion of the duodenum. Two interesting cases of hysteria illustrating a tendency for symptoms which may have had some organic basis to persist after the organic basis had disappeared, are discussed by Dr. R. C. Hamill. Dr. C. G. Grulee in discussing infantile eczema outlines the theories regarding the cause of eczema in children, and emphasizes the advantage of hospital treatment of these cases. The treatment employed in the case reported is given in detail. Dr. A. F. Byfield's article is devoted to a consideration of diseases with associated changes in the spleen and liver (the spleen-liver syndrome). He also discusses the indications for splenectomy in this syndrome. Dr. J. G. Carr reports a case of Banti's disease and also a case of splenomyelogenous leukemia complicated by gout and herpes zoster. The clinical types of zoster and their management are carefully outlined by Dr. C. E. Elliott.

Drs. I. A. Abt and D. B. Witt report a case of carbon monoxide poisoning in a child with resultant total blindness. Carbon monoxide was present in the blood fourteen days after the accident. The diagnosis of gastric neurosis is discussed by Dr. J. C. Freedman. Dr. C. L. Mix reports a very interesting case of endothelioma of the dura, and also a case of carcinoma of the lung in a patient operated on two years before for carcinoma of the breast. In addition Dr. Mix reports two cases of adhesion following cholecystectomy and discusses the after treatment in gastrojujenostomy operations. Dr. W. W. Hamburger discusses the recognition and treatment of different types of auricular fibrillation. Drs. P. A. Daly and S. Strouse present four cases of heart disease complicating pregnancy. Dr. Robert Sonnenschein reports five cases illustrating various types of acute mastoiditis and complications. Of especial interest in the report of Dr. J. H. Hess of the almost simultaneous occurrence and the similarity of onset and course of Friedreich's ataxia in twin boys.

The treatment of premature cardiac contractions with quinidin sulphate is discussed by Dr. F. M. Smith. Nephritis in pregnancy and cases of valvular heart lesions are discussed by Drs. E. L. Cornell and E. K. Kerr, respectively. Dr. J. R. Gerstley emphasizes that in infant feeding it is important to place the welfare of the entire child above that of any particular group of organs.

—Chester A. Stewart, M.D., Ph.D.

NEWS ITEMS

Dr. J. A. Regner has moved from Fertile to St. Hilaire.

Dr. W. W. Nutting has moved from Marmarth, N. D., to Tuttle, N. D.

Dr. F. B. Lodge, of Steele, N. D., has gone to Long Beach, Cal., to spend the winter.

Dakota County (Minnesota) has appropriated $5,000 toward building the Farmington Community Hospital.

A malpractice suit brought against Dr. C. W. Bray, of Biwabik, last month, was decided in favor of Dr. Bray.

It is reported that many physicians in the Northwest will lose their permits to dispense liquors, for the good of the cause.

Dr. Mary Hill Jennings, whose coming to Minneapolis was noted in our last issue, has located at 44th Street and Woodlake Avenue.

Dr. Otto Braun, of Ashland, Wis., died last month at the age of 56. Dr. Braun was on a hunting trip, and died in the woods from heart failure.

The Shriners' Hospital for Crippled Children, built in Minneapolis by the Shriners of America at a cost of $300,000, will be ready for occupancy next month.

Dr. H. S. Diehl, director of the new Students' Health Service at the University of Minnesota, announces that over 3,000 students have been examined this year.

The Minnesota State Board of Health will ask the next legislature for authority to regulate the sanitary conditions of tourists' camps and of summer hotels in the state.

The Nu Sigma Nu medical fraternity held its annual convention in Minneapolis last month, and the meeting was very successful and highly gratifying to all who attended.

The architects plans for the Wadena Methodist Hospital have been received at Wadena. The cost of the building and equipment will reach $70,000, it is now thought.

Dr. Lena B. Beach, for the past fifteen years engaged in state institution work in Iowa, has been appointed superintendent of the Minnesota Home School for Girls at Sauk Center.

Among the Cancer Week speakers from the Mayo Clinic were Drs. C. H. Mayo, L. B. Wilson, H. E. Robertson, V. C. Hunt, A. C. Broders, W. C. MacCarty, H. M. Connor, and G. B. Eusterman.

"Sealed bids" for the care of the poor are being received, apparently in smaller numbers this year, in two or three Northwestern States, especially in Montana. This is a survival of the human auction block.

Dr. Charles M. Cooper, of Chatfield, died last month at the age of 57. He was a graduate of the Medical School of the University of Minnesota, class of '92, and had practiced in Chatfield for thirty years.

The Huron (S. D.) District Medical Society held its December meeting last week at Huron. Papers were read by Dr. Benjamin Thomas on "Cataract," and by Dr. O. R. Wright on "The Druggist and the Doctor."

The marriage of Miss Gertrude Jones and Dr. S. W. Harrington, of the Mayo Clinic, took place Friday, November 17 at five o'clock at the home of the bride's parents, Mr. and Mrs. J. A. Jones, Douglas, Minnesota.

St. Vincent Hospital of Butte, Mont., has received a gift of its present hospital building to be used as a re-construction school for crippled children. The work of the school will be in the hands of Dr. L. W. Allard, the orthopedic surgeon of Butte.

Seattle, Milwaukee, and Minneapolis, in the order named, show the lowest death rate of the twenty largest cities in the United States. Minnesota holds third place among the states, Montana and Nebraska being the first and second in low death rates.

Dr. John G. Phillips, of Northfield died on November 27, at the age of 46. Dr. Phillips was a graduate of Northwestern, class of '05. He began practice in Northfield in 1906, in association with Dr. J. R. Phillips, where he practiced until his death.

The State Board of Charities and Correction of South Dakota will ask the legislature of that state for a hospital and also for a new barn for the Holstein cattle for the State School and Home for the Feeble-Minded at Redfield. Which one will get an appropriation?

The Alpha Omega Alpha Chapter (Minnesota) of Nu Sigma Nu elected the following members of the graduation class of the Medical School members of the fraternity: Frederick S. Richardson, Frederick Vail, Malcolm Gillespie, Richard Aherns, Herbert Carlsen, and Jacob Blumenthal.

The county commissioners of Rice, Freeborn and Steele Counties met at Albert Lea last month, and decided to build a joint tuberculosis sanatorium of 35-bed capacity. The State will contribute $50,000 and the three Counties will give $55,000. The location of the sanatorium has not been decided upon.

A St. Paul paper asserts that Dr. John M. Armstrong, of that city, is an expert archer and that he is determined to kill a deer "with his bow and arrow," "if it takes all summer." He came from the north woods at the end of last hunting season with a dead deer, killed by a bullet "from his little gun."

The General Hospital of Minneapolis has opened an Out-Patient Department Clinic for the study and correction of speech defects in children of pre-school age, of whom there are, it is estimated, 1,000 in the city. A small fee will be charged to cover the cost of special teachers, if the patient is able to pay anything.

Three scholarships for courses in nursing education to be taken at the Minneapolis General Hospital, have been recently given, one by the Kiwanis Club, one by the Woman's Club, and one by an anonymous donor—all of Minneapolis. A scholarship provides an allowance of $100 annually and entrance into the General Hospital.

Dr. B. F. Simon, of the St. Paul Health Department, says that 10,000 St. Paul school children will be inoculated this year against diphtheria. Dr. Simon says the work in this line done two years ago has proven entirely satisfactory and that the method of inoculation has been so improved that there are no reactions whatever.

The Hennepin County Medical Society is engaged in two special lines of work. It is seeking to find out, by means of a questionnaire, the amount of philanthropic professional work done by physicians; and it is planning to aid the lay press in the dissemination of medical information, by furnishing facts as to claims made by charlatans and ill-informed people and by furnishing articles upon medical topics of interest to laymen.

At the annual meeting of the Ramsey County Medical Society held last month, the following officers were elected: President, Dr. E. G. Sterner; vice-president, Dr. C. L. Larsen; secretary, Dr. E. S. Hammes; trustee of building fund, Dr. C. S. Freeman. All of these officers were in the Medical School of the University of Minnesota at the same time, graduating, however, in different years,—from '04 to '07. The Society instructed their delegates to the next meeting of the State Association to vote against the well-established custom of electing presidents of the State Association from Minneapolis, St. Paul, and outside of the Twin Cities in alternation.

The Western Surgical Association, which met in Minneapolis on December eighth and ninth, had for its attendance the first day about 100 registered men from all parts of the country,—Michigan, Oregon, New York, and other points in the East, and a number of men from the central part of the country. If one could comment upon the appearance of a body of medical men one could easily say that they were a representative body of surgeons that could be relied upon to exercise due skill and care both in diagnosis and in surgery, for all of them have reputations behind them that would back them up in any emergency. The business and committee sessions went on during the intermission, while the papers were read at the usual time. Apparently the meeting is one of the most successful meetings of the Association.

ASSISTANT WANTED

Wanted—assistant to help in surgery and take desirable opening in good unopposed neighboring town. Must be a live man, Scandanavian preferred. Practice should go $5,000. Good graveled roads. Minnesota license required. Address 307, care of this office.

OPENING FOR A PHYSICIAN

Hanley Falls, Minn., offers an excellent opening for a doctor. Address, President of the Commercial Club, Hanley, Falls, Minn.

POSITION

Wanted—A recent University of Nebraska graduate with two years internship and a good surgical training desires a location or association with hospital facilities. Licensed in Minnesota. Age 30. Mason. Highest of references. Address 305, care of this office.

PRACTICE FOR SALE

An $8,000 practice in a county-seat city in Minnesota is offered for sale at a low price, and on easy terms. The territory and opportunity are almost unlimited. Price, $2,200, including a one-fifth interest in a $25,000 hospital fully equipped. Insurance and other appointments transferrable. Address 312, care of this office.

PRACTICE FOR SALE

In town of 1200, county-seat, in south eastern South Dakota. Only one other doctor. Rich farming community. Price for office equipment and practice, $200. Practice nets $5,000, and could be doubled with surgery. Address 309, care of this office.

UNOPPOSED PRACTICE for SALE

Prosperous town of 500, Nearest competition, 14, 18, 20 miles; good roads; good Schools; German community. New modern home to rent; collections, 98%. Will sell for price of drugs and office furniture. $400.00 Address 303, care of this office.

WANTED—POSITION as LABORATORY TECHNICIAN and PRIVATE SECRETARY

By a thoroughly competent and experienced young woman with best of city references. Address 306, care of this office.

PRACTICE FOR SALE IN NORTH DAKOTA—A RARE OPPORTUNITY

I have formed a partnership to practice a specialty in a distant state, and I now offer my practice and some office and hospital equipment at a very low price. Population of the town is 800, and there are all modern improvements. Rent of residence and hospital building very low. The field is big enough for two men when times improve. Practically no competition. Insurance, railroad and other work can be transferred at once. A good income is assured from the start. Price very low. Address 310, care of this office.

PRACTICE FOR SALE

In Southeastern Minnesota; general practice established thirty years; office and equipment; population 1400; rich farming community; American; excellent roads, schools, churches; unusually fine opening; terms very reasonable. Address 311, care of this office.

FINE PRACTICE FOR SALE

Owing to the death of my husband I will sell his general practice at once. Town of 5,500 population, the seat of St. Olaf and Carleton Colleges. Office equipment reasonable. Write or phone Mrs. J. G. Phillips, Northfield, Minn.

PHYSICIANS LICENSED AT THE OCTOBER (1922) EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Name	Where and When Graduated	Address
Adams, Sam. Franklin	N. Y. Homeo, M.D., 1920	Rochester, Minn.
Adler, Stuart Welsh	Harvard, M.D., 1919	Winona, Minn.
Ames, Florence Dorothea	Rush, M.D., 1922	Moorhead, Minn.
Camp, John Dexter	Boston U., M.D., 1922	Rochester, Minn.
Ekelund, Clifford Thoren	U. of Minn., M.D., 1918	1730 Portland Ave., St. Paul, Minn.
Faust, Louis Sanders	Northwestern, 4 yr. Cert. Med., 1922	City Hospital, St. Paul, Minn.

Forsberg, Carl Wm.	U. of Minn., M.B., 1922	716 Beacon St., Minneapolis, Minn.
Gracy, Alice	Syracuse U., M.D., 1920	Rochester, Minn.
Johns, Erwin William	U. of Minn., M.B., 1922	629 Wash. Ave. S. E., Minneapolis
Johnson, Walfred	Wash. U., M.D., 1922	St. Mary's Hosp., Minneapolis, Minn.
Lieberthal, Paul Ralph	Northwestern, 4 yr. Cert. Med., 1922	General Hospital, Minneapolis, Minn.
Mason, Edward Chas.	U. of Cincinnati, M.D., 1920	Rochester, Minn.
Murphy, Albert Bernard	Tufts, M.D., 1919	Rochester, Minn.
Nelson, Ernest James	Coll, Med. Evangelists, California, M.D., 1922	Owatonna, Minn.

THROUGH RECIPROCITY

Baken, Melvin Palmer	Rush, M.D., 1921	2319 6th St. S., Minneapolis, Minn.
Barewald, Chas. Lepold	U. of Iowa, M.D., 1891	Davenport, Iowa
Barnes, Arlie Ray	Indiana U., M.D., 1919	Rochester, Minn.
Bergen, Ralph David	Johns Hopkins, M.D., 1921	Rochester, Minn.
Behn, Claud Wm.	U. of Mich., M.D., 1921	Rochester, Minn.
Carter, Fred G.	Johns Hopkins, M.D., 1920	City Hospital, St. Paul, Minn.
Crump, Jas. Walton	U. of Iowa, M.D., 1914	Pittsburg, Texas
Ebert, Jos. Wm.	Creighton, M.D., 1921	Rochester, Minn.
Ewbank, John Nelson	Hahnemann, Chicago, M.D., 1910	366 Prior Ave., St. Paul, Minn.
Fesler, Harold Herbert	Hahnemann, Illinois, M.D., 1920	621 Lowry Bldg., St. Paul, Minn.
Ferreira, Gideon Johannes	U. of Iowa, M.D., 1920	Aurora, Minn.
Garvin, John Day	U. of Pittsburgh, Pa., M.D., 1921	Rochester, Minn.
Hannah, Hewitt Blain	U. of Cincinnati, M.D., 1921	719 E. 18th St. S., Minneapolis, Minn.
Harrington, Francis Edward	Columbian U., M.D., 1904	640 E. 19th St., Minneapolis, Minn.
Hill, Frederick Edgar	U. of Pennsylvania, M.D., 1911	323 W. Superior, Duluth, Minn.
Jenkins, Jas. Thos., Jr.	St. Louis U., M.D., 1922	Swedish Hospital, Minneapolis, Minn.
Keyser, Linwood Dickens	Johns Hopkins, M.D., 1918	Rochester, Minn.
King, W. Ivan	Rush, M.D., 1916	Albert Lea, Minn.
Knight, Mary Sadelia	U. of Cincinnati, M.D., 1920	Rochester, Minn.
Malloy, Jos. Francis	Creighton, M.D., 1921	Rochester, Minn.
Maytum, Chas. Koran	U. of Iowa, M.D., 1919	Rochester, Minn.
Nagel, Gunther Wilibald	Leland Stanford U., M.D., 1921	Rochester, Minn.
Neseth, Ole Sever	Northwestern, M.D., 1917	Kenyon, Minn.
Phelps, Chas. Ezra	Hahnemann, Pa., M.D., 1907	Hartley, Iowa
Reilly, Pierce Jas.	Marquette, M.D., 1922	St. Francis Hospital, La Crosse, Wis.
Rockwood, Paul Reed	U. of Iowa, M.D., 1921	Rochester, Minn.
Rupe, Wayne Arthur	Washington U., M.D., 1918	1717 1st Ave. S., Minneapolis, Minn.
Shaffer, Loren William	U. of Michigan, M.D., 1917	Rochester, Minn.
Smiley, Kenneth Edwin	Johns Hopkins, M.D., 1921	Rochester, Minn.
Vandesteeg, Wm. Gilbert	U. of Iowa, M.D., 1921	Biwabik, Minn.
von Lackum, Wm. Harrison	U. of Iowa, M.D., 1918	Rochester, Minn.
Weller, Charles Grafton	Rush, M.D., 1922	Hibbing, Minn.
Wimmer, Robert Norris	Rush, M.D., 1921	709 S. Ashland Blvd., Chicago, Ill.

UPON NATIONAL BOARD CREDENTIALS

Inlow, Wm. DePrez	Rush, M.D., 1917	Rochester, Minn.
Jennings, Mary Hill	Woman's Med. Coll., Pa., M. D., 1921	4600 Upton Ave. So. Minneapolis, Minn.

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